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VOL. II: No. 5. MANILA AND SHANGHAI, OCTOBER, 1905

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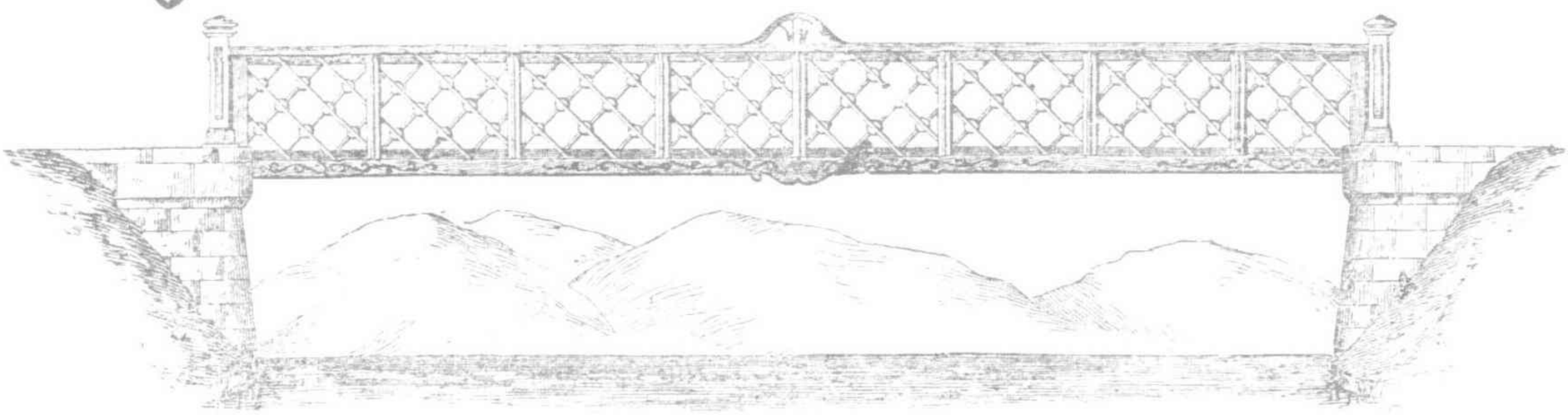

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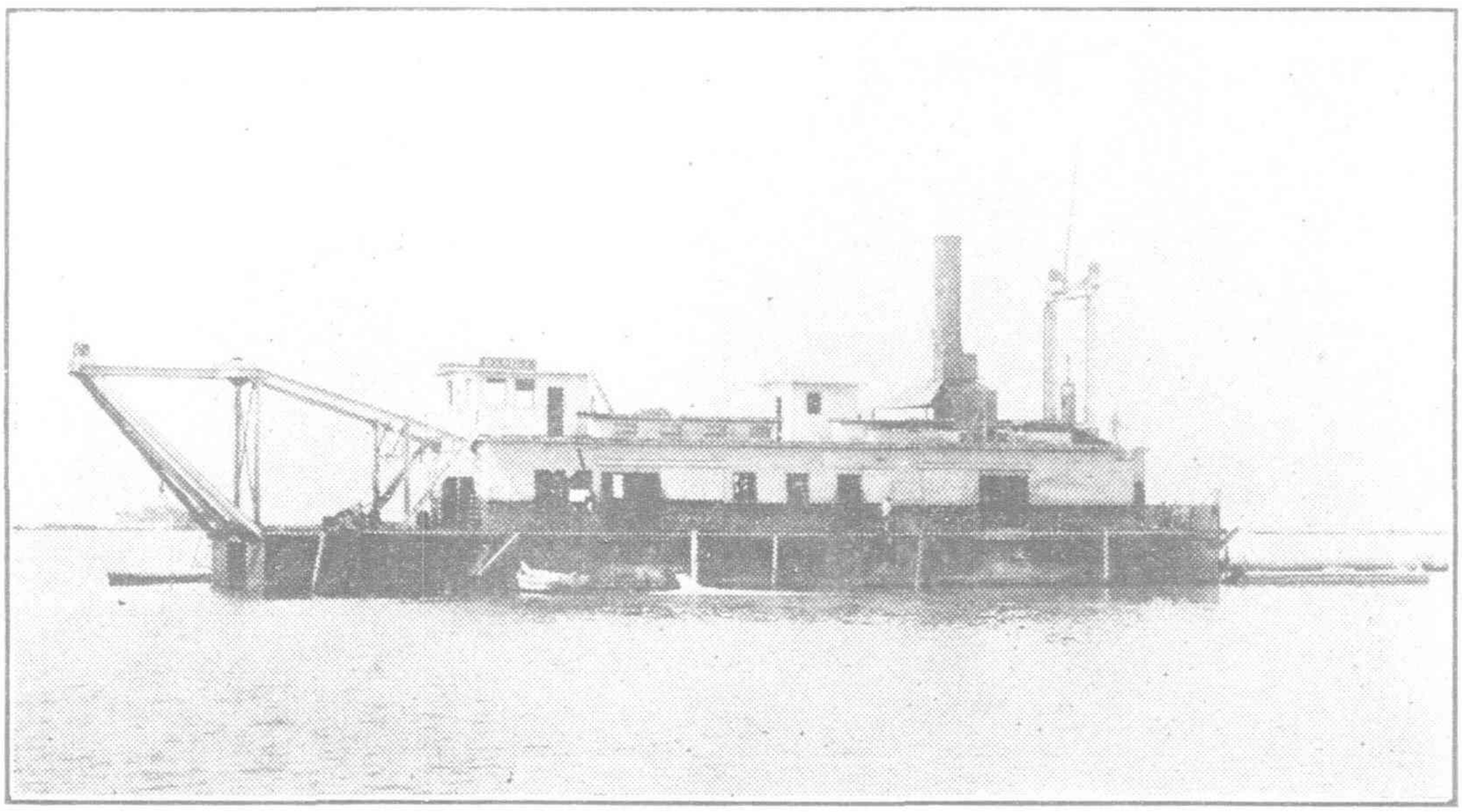

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FAR EASTERN REVIEW

COMMERCE • ENGINEERING • FINANCE

VOL. II. MANILA, P. I., AND SHANGHAI, OCTOBER, 1905. No. 5.

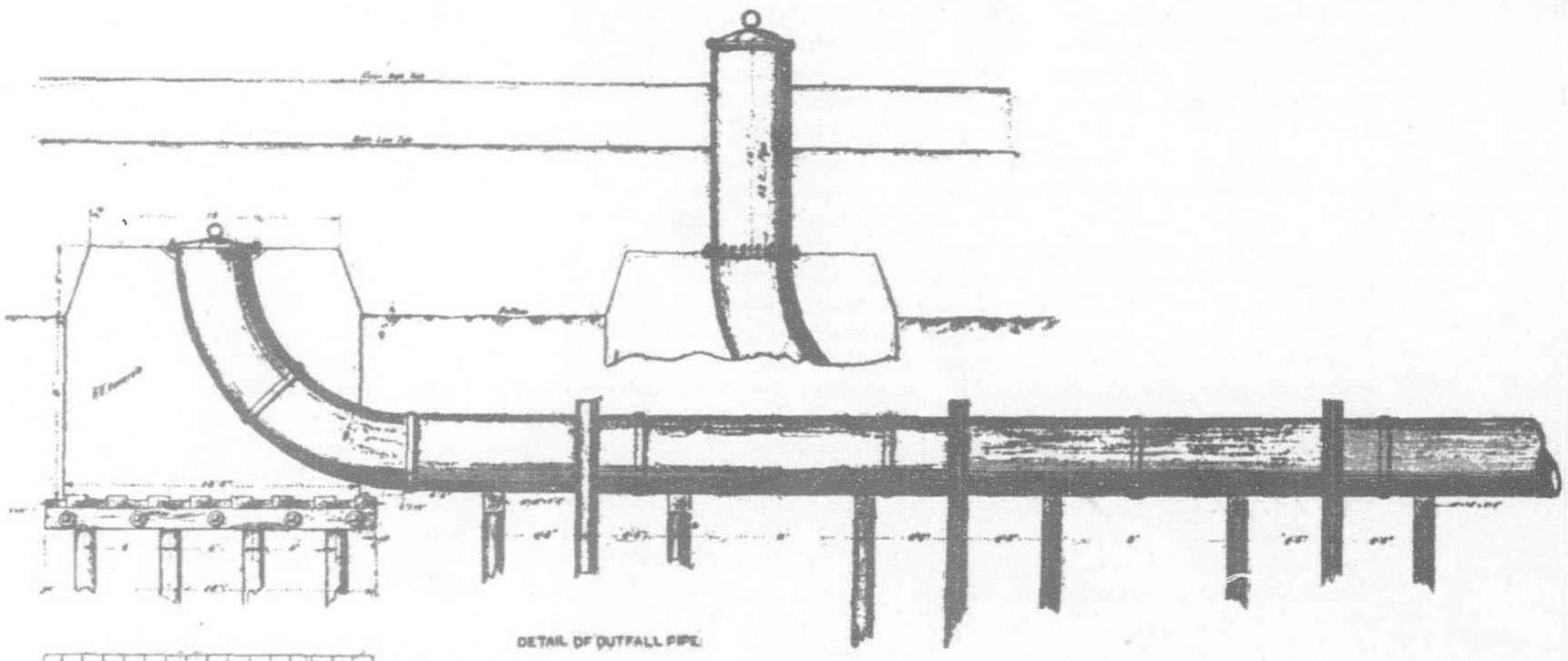
RECONSTRUCTION OF MANILA'S SEWER SYSTEM ALONG MODERN LINES

(J. F. CASE, C. E., CHIEF ENGINEER.)

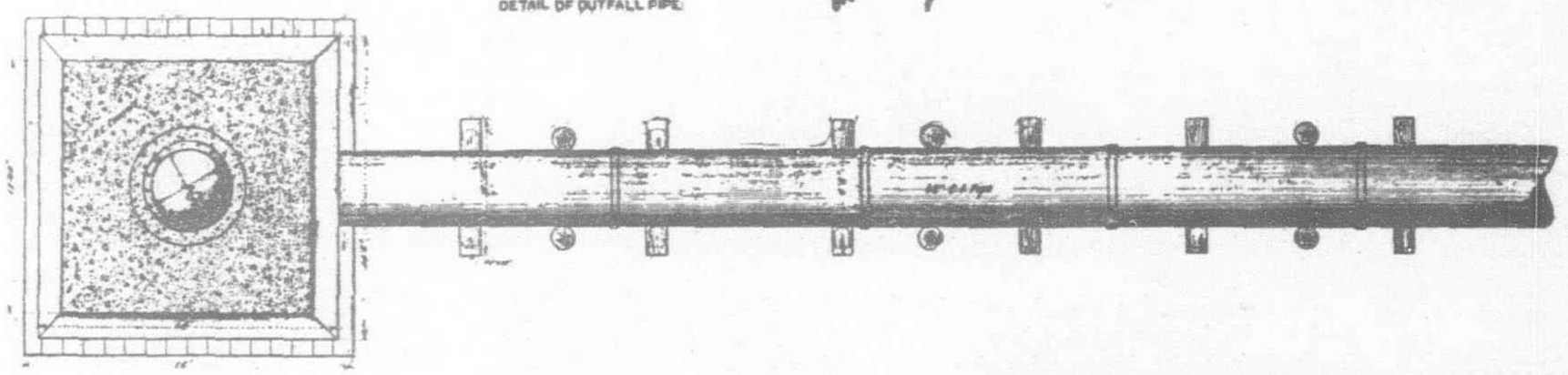
On another page of THE FAR EASTERN REVIEW there appears an invitation for bids or proposals for the construction of a system of sewers and appurtenances for the City of Manila, which will be under the direction of Mr. J. F. Case, C. E., chief engineer, Department of Sewer and Waterworks Construction. Specifications, general plans, and blank forms for proposals may be obtained at the office of the Municipal Board of Manila. Plans and specifications may also be seen at the office of the Bureau of Insular Affairs, War Department, Washington, D. C.

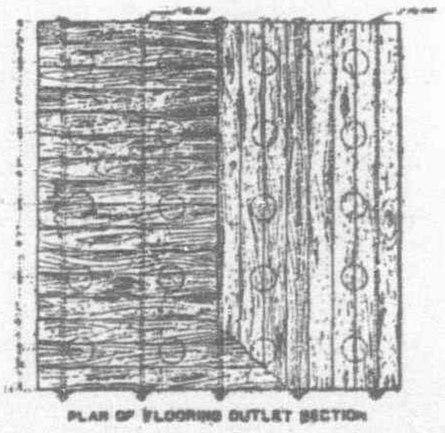
The approximate length of the main sewers is as follows:

	Lineal feet
4.75-foot diameter sewer	1,590
4.50-foot diameter sewer	2,220
4.25-foot diameter sewer	3,300
4-foot diameter sewer	3,150
3.75-foot diameter sewer	6,100
3.25-foot diameter sewer	4,220

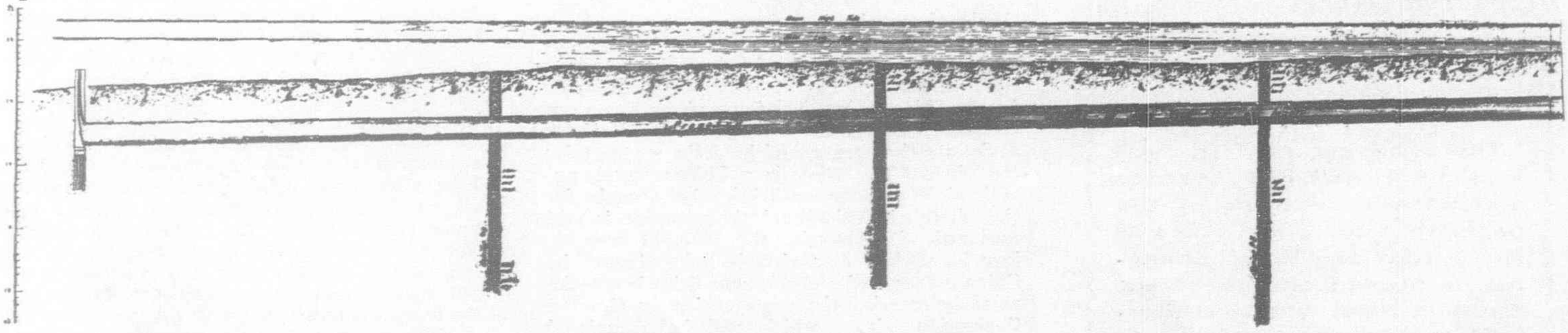


DETAIL OF OUTFALL PIPE





PLAN OF FLOORING OUTLET SECTION



OUTFALL PIPE LEADING INTO MANILA BAY.

2.75 x 4.12-foot diameter sewer	720
2.50 x 3.75-foot diameter sewer	3,370
2.25 x 3.37-foot diameter sewer	6,430
2 x 3-foot diameter sewer	8,040

All bids will be compared on the basis of the engineer's estimate of qualities of work to be done, which, subject to change, is as follows:

Item 1. 156 lineal feet 16-inch straight cast-iron bell and spigot pipe, 4 specials, and 1 (one-fourth) bend..tons of 2,000 pounds 11

2. 310 lineal feet 18-inch straight cast-iron bell and spigot pipe, 8 specials, 3 (one-fourth) bends...tons of 2,000 pounds.. 27

bell and spigot pipe, tons of 2,000 pounds 22

6. 576 lineal feet 36-inch straight cast-iron bell and spigot pipe, tons of 2,000 pounds 131

7. 6,500 lineal feet 42-inch straight cast-iron bell and spigot pipe, including cap and 3 specials...tons of 2,000 pounds.. 1,924

8. Concrete masonry at outlet to force main.....cubic yards.. 48

9. Piling for outlet section....lineal feet.. 61,000

10. Lumber for caps and flooring for outlet section.....feet B. M.. 40,000

11. 42-inch cast-iron pipe and specials in outlet section.....lineal feet.. 6,500

3. 70 lineal feet of 24-inch straight cast-iron bell and spigot pipe, 3 (one-fourth) bends...tons of 2,000 pounds.. 9

4. 1,120 lineal feet 24-inch straight flexible-joint cast-iron pipe and 16 specials (188 feet).....tons of 2,000 pounds.. 219

5. 136 lineal feet 30-inch straight cast-iron

(Continued on page 115.)

FAR EASTERN REVIEW

COMMERCE :-: ENGINEERING :-: FINANCE

A MONTHLY REVIEW OF FAR EASTERN TRADE, FINANCE, AND ENGINEERING, DEDICATED TO THE INDUSTRIAL DEVELOPMENT AND ADVANCEMENT OF TRADE IN THE PHILIPPINES AND FAR EASTERN COUNTRIES.

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MANILA AND SHANGHAI, OCTOBER, 1905

PUBLISHER'S ANNOUNCEMENT

The publisher of THE FAR EASTERN REVIEW begs to announce to patrons of the paper that our China office at No. 9, Kiukiang Road, Shanghai, is now in charge of Mr. E. Collinwood, who is authorized to transact business in the name of the undersigned.

GEO. BRONSON REA,
Publisher.

ENGINEERING DEVELOPMENT OF THE EAST

One of the surest signs of the industrial and manufacturing development of a country is the presence in the larger cities of engineering firms and supply houses. The engineer is the pioneer in opening up a country, and his absence from any one locality marks it as a place of little life and activity as judged from European standpoints. It is true that the larger centers of China present great activity along native commercial lines, and the making of articles which can be turned out by hand; but the absence of any large chimneys representing industry according to Western ideas, give them a peculiar sleepy look, creating a discouraging first impression. Conditions, however, have gradually changed, and although still far from the desired stage, they are much better than in former years.

The Chinese mind is still slowly but surely awakening to the advantages of machinery, and in the larger centers where they are brought in constant contact with manufacturing establishments, have overcome their natural aversion to innovations. As a result, in the last few years many new industrial plants of different kinds have been purchased and installed. The building of the railroads throughout the interior, opening up hitherto unknown cities, will prove beneficial in still further interesting others, while the gradual growth of the electric light and power plants in the large treaty ports can not but help to pave the way for smaller plants inland.

The electrical development of the country has been slow, but substantial results are being secured. The example of the Hongkong tramways and the American electric street railway in Seoul has been of great benefit in overcoming the prejudice of the natives—the "devils" behind the scenes—and with the completion of the tramways in Shanghai and Tientsin, two more strong object lessons will help to spread interest in this direction. To the seventeen electric tramway companies operating in Japan, mention of whose holdings was made in the last issue of *The Far Eastern Review*, must be added the lines in Seoul, Tientsin, Chefoo (projected), Tsingtao (projected), Shanghai, Hongkong, Manila, Bangkok, Hanoi, Singapore, Penang, Rangoon, and Mandalay. A concession has been applied for by an American company for an electric tramway connecting the port with the city of Nanking, and there is every prospect o considerable development along similar lines in other parts of the Chinese Empire. In the Philippines, the system at Manila, just completed by Messrs. J. G. White & Co., will be extended to all points within reasonable distance, and other cities, such as Cebu and Iloilo, are already considering the advisability of building short lines. The railroad from Dagupan to Baguio, the summer capital of the Philippines, which is part of the general scheme advertised by the government, will in all probability use electricity for the motive power, the Agno River falls nearby, being capable of developing the energy.

The lighting field is also gradually extending, and in the last year has been completed a plant for lighting the imperial palace at Peking—remarkable as denoting the change in the attitude of the dowager-empress, who has been the main obstacle in checking any foreign innovation—and two companies have been organized, one for lighting the Tartar City, the other for the Chinese City. The former is an European company, of which Messrs. Arnhold, Karberg & Co. are the agents, and hold the contract for the plant. The other is a Chinese company, and while arrangements have been made for the plant we understand the contract is still unsigned. In Tientsin, the different concessions have their own electric light plants, the China agency of the Siemens-Schuckertwerke recently securing the contract for the German Concession plant, which will be completed during the vear. There is talk of electric lighting plants for Chefoo, Amoy, Hankow, Swatow and other points, which will take definite shape in a short time. The German firms—the Allgemeine Electricitats Gesellschaft and Siemens-Schuckertwerke—seem to have made the most progress in this field as they are both represented on the ground by firms having an electrical department. The agents of the former manufacturers, Messrs. Arnhold, Karberg & Co., have secured several important contracts, among which is the application of electric motors to the mint and government factories at Wuchang.

British electrical manufacturers are represented in China by Messrs. Jardine, Matheson & Co., who hold the agency for Ernest Scott & Mountain, Ltd., and the General Electric, Ltd., by Messrs. E. C. Wilks & Co., of Hongkong. Messrs. Sam. H. Shorrock, electrical engineers of Shanghai, recently secured the contract for the Shanghai tramways for Bruce, Peebles & Co., the electrical machinery manufacturers of Edinburgh and London. The Shanghai Electric and Asbestos Company and Messrs. E. E. Potter &-Co., of Shanghai, also carry on a general electrical business for Shanghai and the outposts, and all the larger shipbuilding and dock companies throughout the East conduct an electrical department for marine work.

Outside of Manila, American electrical firms do not seem to be represented in China, although they are strong in Japan. In the latter country, however, many of the orders are placed through Japanese firms with New York branches. Another factor in the Chinese electrical field which will have to be counted on in future—especially for small isolated plants and central stations—is the Japanese manufacturer. The Shibaura Engineering Works of Tokyo manufacture a high-class generator and motor in addition to other electrical apparatus, and the "Miyabara" water-tube boiler, and are in good condition, through their connections, to make a strong fight for small plants. This company is one of the Mitsui enterprises and has the well-organized machinery of the selling company, the mitsui Bussan Kaisha, to push its machinery when the time is ripe. Already the Japanese have secured several minor contracts in China for under the noses of over-confident European firms, and with the termination of the war and return to normal conditions, we may expect increased activity from this source. A new field will be open for the enterprise of the Japanese engineer, educated in European and American technical colleges, who, with the advantage over the foreigner in dealing with the Chinese, and selling the machinery of his own country, will prove a most formidable competitor. Japan has easily led the European countries in electrical development and has many competent and experienced men as a result of established electrical industries, and several such engineers are already located throughout China, catering solely to the native trade.

In Manila the larger American electrical manufacturers are fairly well represented—the General Electric Company by Grant & Co., Ltd., the Westinghouse Electric Manufacturing Company by Messrs. Castle Bros.-Wolf & Sons, the Allis-Chalmers-Bullock Company by the Bryan-Landon Company, and the C. and C. Electric Company by Fred W. Bohler, while the Manila Electric Railroad and Light Company also handles motors and supplies for its patrons. Messrs. J. G. White & Co. and the Oriental Construction Company are in the field for large contracts, and Messrs. Germann & Co., Ltd., representing Siemens-Schuckertwerke, conduct an electrical department to their engineering branch and secure a good share of the business.

The field is one which demands a little closer attention from the large manufacturers, as the last few years have proved that the awakening has been rapid, and where five years ago there was only talk, today there are about thirty electric railways alone operating in the Far East, and central lighting and power plants in all the leading ports, supplying currents for thousands of motors for industrial purposes. The importance of this great stride forward is lost to the manufacturer who contents himself with glancing at the map, and comparing the few ports mentioned with the great number of cities unheard of in the onward march, but when it is considered that the China field is limited only to a few treaty ports, from which all this development emanates ,and that the same advance can be expected from the newer ports opened to trade and from there on to the ultimate opening of all the principal cities, the possibilities are such that preparation should immediately be made to meet the growing trade.

WIND.

Wind is a good force for certain ends. It can be used at times with profit. It is useful for running a sail-boat or a windmill, but you

can't run a government on wind. That takes money, and barrels of it. Money for running a government must perforce be raised by taxation, and the ability of a country to withstand taxation is in direct proportion to its productive power and the development of its natural resources. Therefore, it should be clearly apparent that to run a successful government every energy should be devoted to building up the industries of the country, in the full confidence that once material prosperity is attained there will be sufficient funds to run the government properly and a goodly balance in the treasury to devote to the dissemination of learning and the betterment of public morals.

These rudimentary principles occur to us in looking over the last Philippine Budget. Millions are there for gold lace and the school book manufacturers, but comparatively little for the real material advancement of the country. And the cry is still for more money, but the Islands have reached the limit, and but little more can be expected. The reaction has set in. The first steps are a reduction of expenses to meet the threatened deficit. This has already been acted upon by the Philippine Commission, and what has been dubbed a "headhunting" committee is now at work seeing where the pruning knife can best be employed.

We have watched with interest the various opinions advanced advocating the cutting down of a clerk or so in some one department, the abolishment of this or that bureau, or its incorporation into another, and so on, but we believe all these efforts are abortive and will only result in the saving of a few pesos at least.

It is not the pruning knife we need in the Philippines just now, but rather a large, heavy axe—the kind that lops off a branch with one good, well-directed blow. And without going into the small details of pruning, in our humble opinion this large, sharp instrument should drop right on the two bureaus which absorb the largest share of the insular appropriation—the Constabulary and the Bureau of Public Instruction. Both of them are unwieldly and take up too much of our strength to support. And both are unnecessary under their present system of organization, and out of place in the make-up of our governmental system.

The Constabulary may have proved its value, but with something like 17,000 United States troops in the Islands putting in time, doing nothing, its value is not commensurate with the extra burden on the taxpayers. We have the regular troops of the homeland and the Philippine Scouts, scattered throughout the Islands very thoroughly, to insure protection, but to satisfy the new civil government which desired to operate independent of the military, the creation of this insular constabulary was deemed necessary.

Government troops have always been garrisoned throughout the West of the home country to check any Indian outbreak and put down other disorders, and they are there today despite the existence of the state militia in the same districts. In the event of an uprising, it is the regular who goes on the warpath, and not the militia. The same should apply to the Philippines. Let us have our local police, if necessary, or a small body of rural guards to operate throughout the provinces, and when the situation demands the regulars are here to restore order. The regulars command respect among the natives; the constabularymen do not.

Inducements are held out to college graduates to seek commissions in this insular police force, and they look forward to promotion through the various grades to the star of the Brigadier-general. Vain and idle dream! All grades above that of captain will always be given to some officer of the regular army who has the necessary "pull." Then, if we are to employ army officers and give them increased pay, quarters, etc., to run our police force, why not turn the entire work over to the army and be done with it. The regulars will always have to come to the rescue anyhow. Witness Samar and the Province of Cavite.

We don't need an insular police force with brigadier-generals, colonels, lieutenant-colonels, majors, and the rest of the gold-bedecked commanders, for a while yet. We can't afford it. They are luxuries, and as such can be dispensed with until we have some money to throw away on luxuries. It is not going to undermine the prestige of the civil government to advocate this change. It is not an indication of weakness, nor inability to cope with the situation. On the contrary, the active presence of the regulars throughout the provinces will do more to restore confidence in the government and respect for its authority than all the constabulary armies it could enlist. In our opinion the constabular system is a failure, and an unnecessary luxury and expense. Work the large, sharp, heavy axe and lop it off. Don't prune it down. Just ask congress to do this at the forthcoming session and then give us the same protective functions in the Islands as prevail in the western part of the United States.

Our mission in the Philippines, according to some, is one of education, and utterly ignoring the fact that the Catholic Church has some of the finest schools in the world here, the advocates of this system have gone raving mad in education. If we listen to the arguments of the educational bureau and its supporters, they will prove to us that the entire salvation of the Islands—commercial, industrial, financial, moral, and educational—depends exclusively upon the work of this bureau; and consequently all the loose millions, odd pesos, half-pesos, pesetas and media-pesetas, should be placed in its hands for the erection of new school houses, more teachers, and especially for more school books. Yes, and they must have manual training schools, trade schools, nautical schools, high schools, grammar schools, common schools, nipa schools, model schools, and open-air schools. And now they must have a university and even a conservatory of music, which mean preparatory schools; military academies, schools of medicine, engineering and law—and don't shy any bricks this way when we add to this long list of institutions of learning, a Chautauqua! Yes, a Chautauqua after the American system is what the pedagogues are plugging for now. They want the government to establish it, probably at Baguio, supply the lecturers once a year from among the best talent in the homeland, and fix it up so that the teachers all over the Islands may assemble and drink in the words of wisdom and learning that will fall from the lips of the college professors, etc., from the homeland. This is the limit, we think.

But with all this educational insanity, the educational bureau has not been able to find means to provide a suitable school somewhere in Manila for the American children, whose parents help pay the taxes. The children can have all the school books they want. We know of a little boy 6 years of age, who was given four different readers in the space of two months, all from different publishing houses, and which called food "chow chow".

"Does Ramon like chow chow?"

"Yes, Ramon likes chow chow."

And when we asked one of the educators why the bureau did not provide a suitable school for the American children, he glibly informed us that the government was not expected nor required to look after the education of the whites.

"We're here to teach the Filipinos, not the whites."

We felt like soaking that teacher one behind the ear,—but we refrained because we saw visions of a funeral and its consequences.

So you can see that the school system has been organized and is being run for the exclusive benefit of the Filipinos. American children have no place in it.

Now, we believe in education. But we also believe that education should be meted out to people according to their ability to absorb it properly, and not given to them like the "water-cure"—forced down their throats till they choke. Education should also be given according to local willingness to pay for it. We see no good reason why this grand, generous scheme for the salvation of the Islands should be shouldered on the general taxpayer. We, in Manila, especially the Americans, pay proportionately more taxes on the necessities and luxuries of life, which go to swell the budget for the erection of a trade school in Igorotland, but we can't have a decent school for our own children.

Let the municipalities pay for their local police and local schools, under a central board, and lift this crushing blow from general taxation. This may hamper and curtail the work of the educational bureau, but we are confident it is going ahead fast enough. When it seriously advocates the creation of a university, and so saddle us with another odd million or so of debt, not to speak of the conservatory of music and that Chautauqua, we think a check should be put on its energies until such time as we have taught these people how to work.

Work, industry, and prosperity are needed—capital to develop the lands—labor to work them. And afterwards, when good times come around, and money is easy, and the material development of the country assured, let them go ahead with their universities, conservatories of music, Chautauquas, dancing schools, bandstands, gold lace, insular armies, and so on. For the present we are trying to carry these along on wind. It takes money, and we "hain't got it to spare." Let congress work the big axe and lop off this extravagant educational system, too.

CURRENCY MENACE IN CHINA.

The past year has witnessed a marked activity and upward trend of prices in the world's copper market, owing to a sudden and for a time unaccountable demand for the metal from China. This has since been fully explained by the abnormal increase of the provincial minting plants, and it is clear, even to the casual observer, that if this activity is permitted to extend without some attempt at regulation the demand will steadily increase in proportion and have a still further effect on prices.

If China can create such a stir by simply trebling her 1903 imports of 6,066 tons, the influence on the market can be imagined if existing conditions reach their logical climax with the new minting plants working to full capacity, when the demand will jump from last (1904) year's record of 13,718 tons—purchased for the mints—to a possible 108,700 tons. At the present average cost of say $350 gold per ton, this would make a total of $38,045,000 or approximately one-sixth of the entire import trade of the Empire.

Only a short time ago China pledged herself by solemn treaties to establish a uniform system of coinage, but with characteristic duplicity, hardly had the ink dried on the documents when the provincial mints were increased, and the situation at present is worse than before. The vigorous protests of the foreign chambers of commerce, commercial bodies, and the warnings of the press, have been passed over unheeded, and apparently no efforts have been made by the Diplomatic Corps at Peking to exact compliance with the terms of the treaties. If permitted to continue the situation must ultimately lead to disaster.

The unusual interest and activity in this line throws a bright light on the anti-foreign policy of the real rulers of China, for while the viceroys stoically refuse to recognize the advantage of modern machinery and appliances for the industrial development of their respective preserves, placing obstacles in the path of the foreigner seeking concessions, their antagonism disappears when it comes to a question concerning their own pockets, and this concerns them all the time. Making money—for the viceroy—is their principal pursuit, and all other interests of state and politics are subservient to this end; so the installation of "money-making" machines is now the fashion in all the provinces.

The old mints with 235 coining machines have been remodelled, and complete new plants installed. With existing plants in operation, machinery in transit and ordered for future delivery, there will be a total of 846 coining machines in operation throughout the empire, and nearly all turning out the copper 10-*cash* token. According to data on file at the Shanghai General Chamber of Commerce, the distribution of these machines is as follows:—

	MACHINES		
Mints.	Old.	New.	Total.
Canton.....	50	30	80
Foochow.....	20	12	32
Soochow.....	18	56	74

Hangchow....	16	80	96	
Nanking.....	32	—	32	
Hupeh.....	—	—	150	
Hunan.....	4	36	40	
Ngankin.....	8	12	20	
Chingkiang...	—	—	60	
Honan.....	—	—	6	
Chihli.....	—	100	100	
Szechuen.....	82	—	82	
Shanghai.....	—	45	45	Transferred to Nanking.
Kiangse.....	6	12	17	
Shantung.....	—	—	12	
TOTAL.....	235	383	846	

It is estimated that one machine will coin 10.71 tons of metal per month, or a total for all machines of 108,700 tons per year. One ton of copper will coin into about 151,000 10-*cash* pieces, so the total output would be about 16,413,700,000 pieces, or about forty pieces *per capita* of the estimated population of 400,000,000.

From facts secured through reliable sources it is ascertained that the metal value of one 99 per cent copper 10-*cash* piece only equals four to four and one-half 1-*cash* pieces coined in the last quarter-century, so the immediate profits to the mints is enormous. The profit is estimated at 35 to 40 per cent, of which one-third goes to the mint authorities and two-thirds to the pockets of Their Excellencies, the Viceroys, who, in turn, disgorge into the insatiable maw of those higher up at Peking.

With a real value of 6-*cash* or less the industry must be an agreeable one for the promoters, and one they will be loath to discontinue. The temptation to debase the coin in order to multiply the profits is always present when no national supervision or regulation is in force; and again, unrestricted coinage, with its consequent immense consumption of copper, must materially affect the price of the metal and increased cost is sure to compel their debasement in order to uphold the standard of profit.

These coins will be offered in payment of taxes and revenues, and will increase, resulting in new methods of taxation for the native and further impositions on foreign trade.

These mints should be under the direction of the Imperial Department, and guarded as carefully as the customs and posts. Now is the time to insist on this measure, while the scheme is new, and not yet in full working order, and not wait till the actual danger is at hand. China should uphold her treaty obligations, and by taking over the provincial mints at once can make a long stride towards gaining the respect of the Powers and setting her finances in order to meet her growing expenses.

"THE METROPOLIS OF THE EAST."

We have read with great pleasure the efforts of our esteemed contemporaries in Manila to boom the port, and have inwardly applauded the journalistic acrobatic performances in calling attention to the wonderful future for the "Isles of the Southern Sea." We have followed with interest the urdite and grave prophecies of prospective magnificence, have mentally noted for our own use the new and wonderful adjectives discovered in Webster's by the editorial explorers of the Pasig, and have nearly thrown a spasm or two, just to keep them company. But we were called away to Hongkong, to Swatow, Amoy, Foochow, finally anchoring at Shanghai, and we have had time to study the other side of the roseate forecasts, picking out flaws and discrepancies, and to peruse the glowing descriptions which arrived at our desk at long intervals. And, figuratively speaking, we have been forcibly struck with the other side of the hammer right where it hurt most, and have expended all the sulphurous words in our vocabulary every time the blow landed.

Yes, we will admit from the arguments forced upon us, that Manila is destined to be a great port—an immense distributing center; in fact, the trade Hub of the Orient which the merchants of the other picayune and insignificant ports like Hongkong, Shanghai and Singapore will turn to for cargoes and American manufactured products. We can also dream with our confreres and see visions of the Trans-pacific steamers making a bee-line from San Francisco to the Pasig, passing under the huge cranes at the great docks, and with a few turns of the crank having the entire cargo yanked out and deposited gently in the cavernous godowns and immense bonded warehouses, from where goods are immediately transferred to lines of steamers waiting to carry them to the clamorous merchants of the mainland. We can see that the results of this trade will be so profitable that return cargoes will be unnecessary for the successful operation of the great liners, which will return at once to San Francisco in ballast for more goods. They will have a complete monopoly owing to the application of the coastwise laws, freezing out competition. Even if there was a prospect of return cargoes, a kind, paternal and benevolent congress, having the best interests of the Islands next to its heart,—that is, in the inside pocket,—will have industriously built a few more rows of bricks and cement on that high front-yard Dingley wall encircling the private preserves, that products of the Southern Isles could not be hoisted over with a mile-high derrick.

Yes, we have visions of godowns bulging their walls with merchandise, and we also see the China firms falling over each other in a wild scramble to place their orders in this wonderful metropolis of Luzon. And then, the end of the month comes round, and we wake up; and in the words of the immortal Chimmie Fadden echo, "Not on yer life."

But the dreamers are persistent, and pester us with sure tips on the future, and we wonder where we "are at" or where we "get off," for when we think we have a fair line on our prospects, along comes a typical *boom special* from the Pasig, resplendent in a cover, which shows our little port as the center of the univer e with the trade routes of the world all diverging therefrom. About ten large liners are manoeuvering for position to enter some little cocoanut lined inlet, without colliding, and the whole appearance is one of prosperous times in the copra trade. We know our Manila, that is, we are slightly conversant with the situation here, but we give place and precedence to the enthusiasts of *The Daily Bulletin*. We are attracted by an article, the leading one in fact, from the pen of our distinguished warrior and transportation expert, Major-General Henry C. Corbin, Adjutant-General, U. S. Army, commanding the Philippines Division. We have just received a "sockdolager" from the hammer, and read and re-read the words of wisdom, to absorb the full significance of the information, and rub a little on the still aching spot.

Corbin on Manila says: "The city's geographical location, her great harbor and the new dock system which, when completed, will permit the largest ocean-going steamer to tie up alongside, indicate that this port will be the trade center of the Orient within the nevt few years, *if sufficient encouragement is given commercial interests.*" We endorse General Corbin's philosophy on this point, but it is too far in the future to act as a balm for the present black and blue mark. Continuing, he says: "Manila is two days from Hongkong, five days from Shanghai, eleven from Colombo, and thirteen from Sydney," and so on till he apparently proves that Manila is the capital of Asia, Australia, Polynesia and Malaysia—that Manila is the port of ports—in fact, that Manila is IT.

And we respond: "Yes, General Corbin is a wise man. Shanghai *is* five days from Manila," and we prove it by the map. About once in six months a government transport locates an uncharted reef somewhere in the Sulu China sea, leaving a plate or so from her underworks, to mark the spot so it can be located again. And then, being under the direction of the general's sphere of influence, the vessel is ordered to Shanghai for Messrs. S. C. Farnham, Boyd & Co. to replace the part left on the reef, and it takes her five days to make the trip—maybe. Or it becomes necessary to relieve the guard at Seoul or Peking, and the transport drops in at Shanghai, on the voyage up, to allow the officers and families time to explore the wilds of Pootung or the curio shops of Hongkew. On such state occasions we are also positive that Manila is only five days from Shanghai. Once or twice a year the Asiatic Fleet moves from Cavite to Chefoo, and return, calling at Woosung for water and mails, and again we are sure the distance is five days—that is if no manoeuvers are indulged in at sea.

And then we do some lightning calculating like this: THE FAR EASTERN REVIEW was published on the 19th day of the month; in the mails on the 20th; two days to Hongkong, the 22d; three days from Hongkong to Shanghai, the 25th. All according to our "boomers"—and we reflect. It is now the 5th of the ensuing month and the American postmaster at Shanghai assures us that no mail from Manila had arrived on the British mail steamer just in from Hongkong, and we make a more favorable calculation; paper published the 19th; mailed 20th; three days to Hongkong, the 23rd; allow two days for them to wake up over there and locate the sacks and reship on north-bound steamer, the 25th; then three days to Shanghai, the 28th; one day for the mail to come from the British postoffice to the American office, the 29th; another day for the American force to resort the letters and turn them over to the Chinese authorities, the 30th; another day before the Chinese delivery is made to the office, the 31st; but we know that the latter can be squeezed up a little and the delivery generally made the next day after arrival, which should bring papers and mail in on the 29th. It is now the 5th, sixteen days from the Metropolis of the Orient, and the mail still somewhere out on the briny deep, between Woosung and Mariveles, or carried on to Japan by some previous steamer. That is where the hammer hurts.

With a sigh we return to the office and search the dictionary for additional expletives, but we have used them all. Yes, the wise general is right, and he ought to know what he is talking about. In our youth we resided in the wilds of Long Island and can bear testimony to the Corbin knowledge on transportation, distances and time-tables; and remember how, if the elder Corbin's scheme had gone through and Montauk Point made the terminus of the transatlantic steamers, the distance between Europe and New York city would have been shortened twenty-four hours, *via* the Long Island Railroad, to the lasting credit of its principal owner. If the present bearer of the great railway name would devote some of his influence and spare change to the transportation problem of the Far East, his prophetic word, about Manila might be realized in a few years, but we venture the assertion that unless capital is invested and trade encouraged, and the island ports thrown open, his estimate of our greatness will be like unto hazy dreams of the habitués of the pipe.

We are heartily in accord with any scheme for promoting the welfare of Manila and the Philippine Islands, and are doing our share in a steady, conservative manner, but we insist from our viewpoint that cheap "booming" at this stage is to be deprecated. The future of this port and its relation to the other trade centers of the East, depend on the cooperation of official and private enterprise; and before any headway can be made at all the mail service must be thoroughly organized, and every facility and means centered in bringing the ports of the East into closer contact. Fifteen days between Manila and Shanghai, *via* Hongkong, means seventeen to twenty days to Japan and a corresponding increase of time to the United States. Shanghai and Japan merchants can have little intercourse with Manila, when they can get the same service from America direct in about the same time.

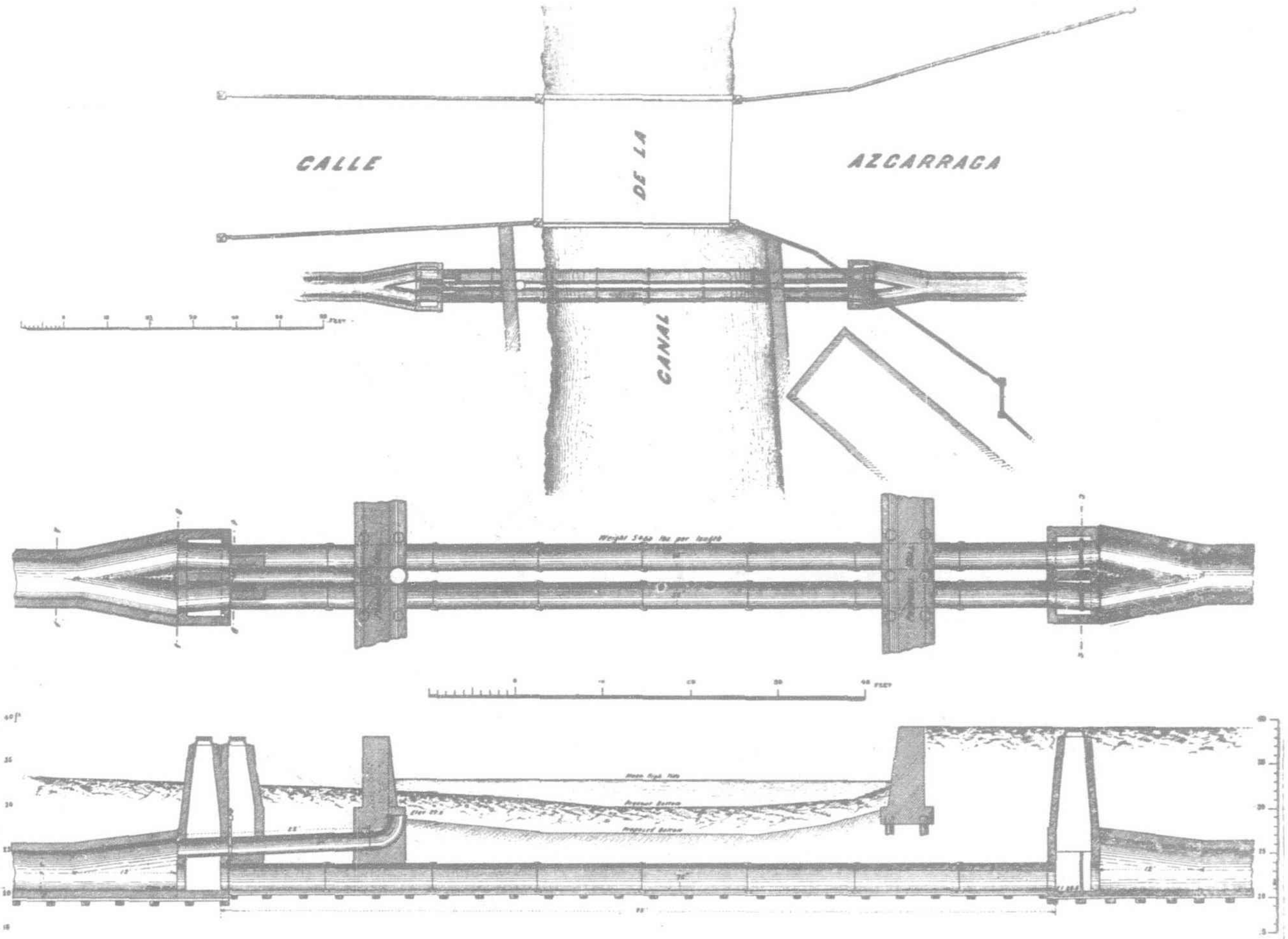
It will be seen that all attempts to pull ourselves up by the bootstraps can only excite the ridicule of the firms on the mainland who are conversant with existing conditions, and we suggest to all who have the material progress of the Philippines at heart, and desire to see some of their fond dreams realized, to insist and work for a mail service which will pave the way for future prosperity.

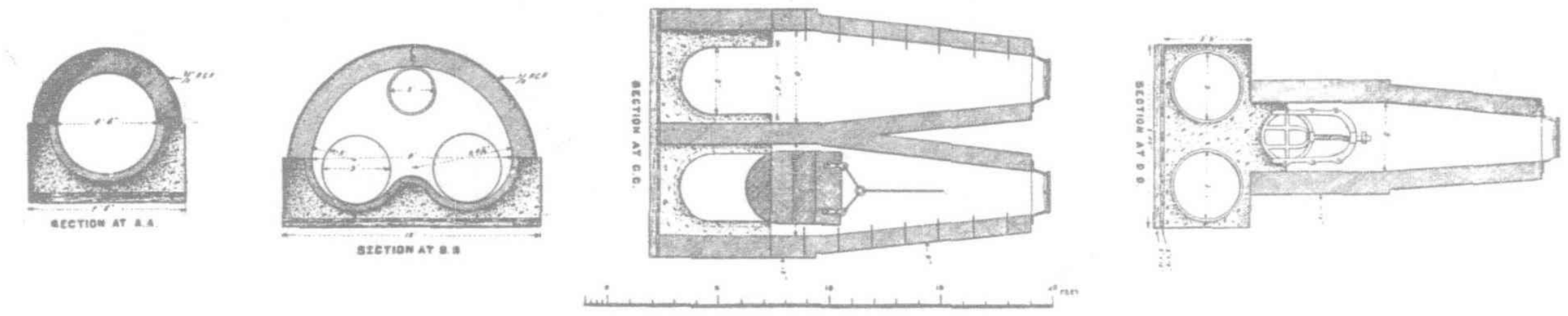
RECONSTRUCTION OF MANILA'S SEWER SYSTEM ALONG MODERN LINES

(Continued from page 111.)

12. 24-inch cast-iron flexible-joint pipe crossing of Estero de Trozo, lineal feet..... 223
13. Casi-iron pipe and special castings Binondo Estero crossing..lineal feet.. 103
14. Cast-iron pipe and special castings at crossing of Estero de San Jacinto, lineal feet..... 102
15. Cast-iron pipe and special castings at crossing of Estero de San Miguel, lineal feet..... 88

GENERAL PLAN OF THE SEWER SYSTEM





CROSSING OF ESTERO DE LA REINA REGENTE AT CALLE AZCARRAGA

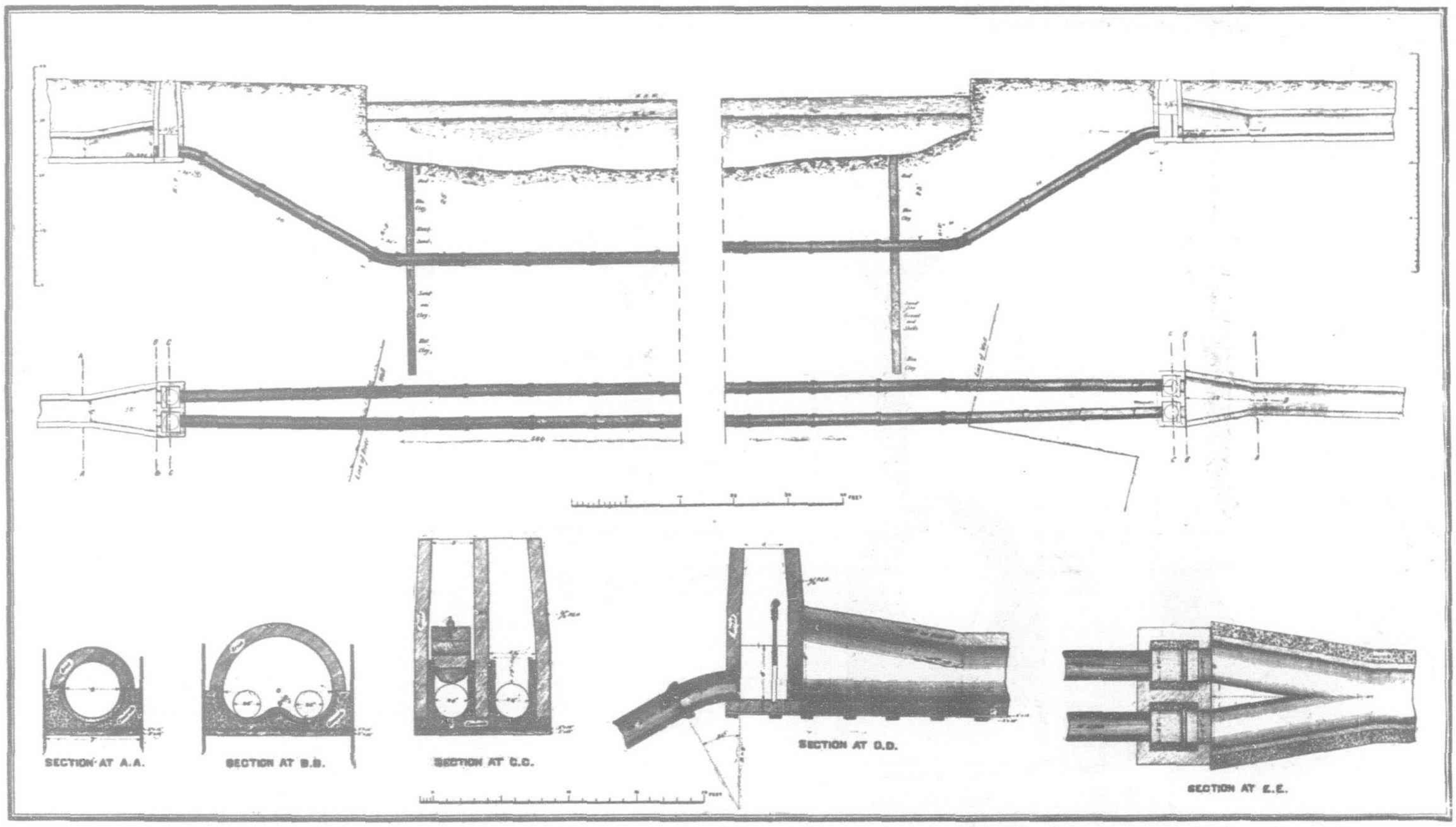
16. Cast-iron pipe at crossing of Estero de Tanduay.....lineal feet.. 84
17. Cast-iron pipe at crossing of Estero de Luneta.....lineal feet.. 144
18. Cast-iron pipe and special casting at and specials, at river crossing, lineal feet..... 1,308
19. Cast-iron pipe and special casting at crossing of Estero de Meisic, lineal feet..... 213
20. Cast-iron pipe and special casting at crossing of Estero de Bilibid, lineal feet..... 156
21. Cast-iron pipe and special casting at crossing of Estero de la Reyna, lineal feet..... 212
22. Earth excavation.....cubic yards.. 330,000
23. Concrete masonry, except outlet section, arches of main sewers, and flush tanks.....cubic yards.. 19,600
24. Concrete in arches of main sewers, cubic yards..... 3,860
25. Brick masonry, except in arches of main sewers and manholes, cubic yards..... 3,040
26. Brick masonry in arches of main sewers, cubic yards,..... 3,970
27. Brick masonry in manholes, cubic yards..... 1,120
28. Concrete invert blocks.....lineal feet.. 18,500
29. 24-inch diameter terra-cotta pipe, lineal feet..... 1,620
30. 21-inch diameter terra-cotta pipe, lineal feet..... 8,860
31. 18-inch diameter terra-cotta pipe, lineal feet..... 8,560
32. 15-inch diameter terra-cotta pipe, lineal feet..... 8,800
33. 15-inch diameter terra-cotta pipe, lineal feet..... 7,350
34. 10-inch diameter terra-cotta pipe, lineal feet..... 18,040
35. 8-inch diameter terra-cotta pipe, lineal feet..... 169,480
36. Subdrain, 6-inch diameter terra-cotta pipe.....lineal feet.. 19,400
37. 6-inch terra-cotta standpipe, lineal feet,..... 9,900
38. 6-inch terra cotta V-branches, lineal feet..... 3,700
39. 6-inch terra-cotta one-fourth and one-eighth bends..... lineal feet.. 3,600
40. Foundation lumber under main sewers.....feet B. M.. 570.000
41. Foundation lumber under terra-cotta and cast-iron pipe sewers..feet B. M.. 300,000
42. Sheeting and bracing lumber left in trench.....feet B. M.. 650,000
43. Gravel in place around 6-inch subdrain.....cubic yards.. 550
44. 2-foot manhole frames and covers, number..... 840
45. 3-foot cast-iron manhole frames and covers.....number.. 10
46. Flush tanks..... do..... 370
47. 4-inch terra-cotta pipe.....lineal feet.. 1,200
48. 4-inch (one fourth) terra-cotta bends, number..... 400

The specifications require that the contractor shall begin work within 3 mos. after the date of the execution of the contract, and that the rate of progress will be such as is necessary for completion within the time specified, and he will so conduct the work that on or before July 1st, 1905, the whole work covered by the contract shall be completed.

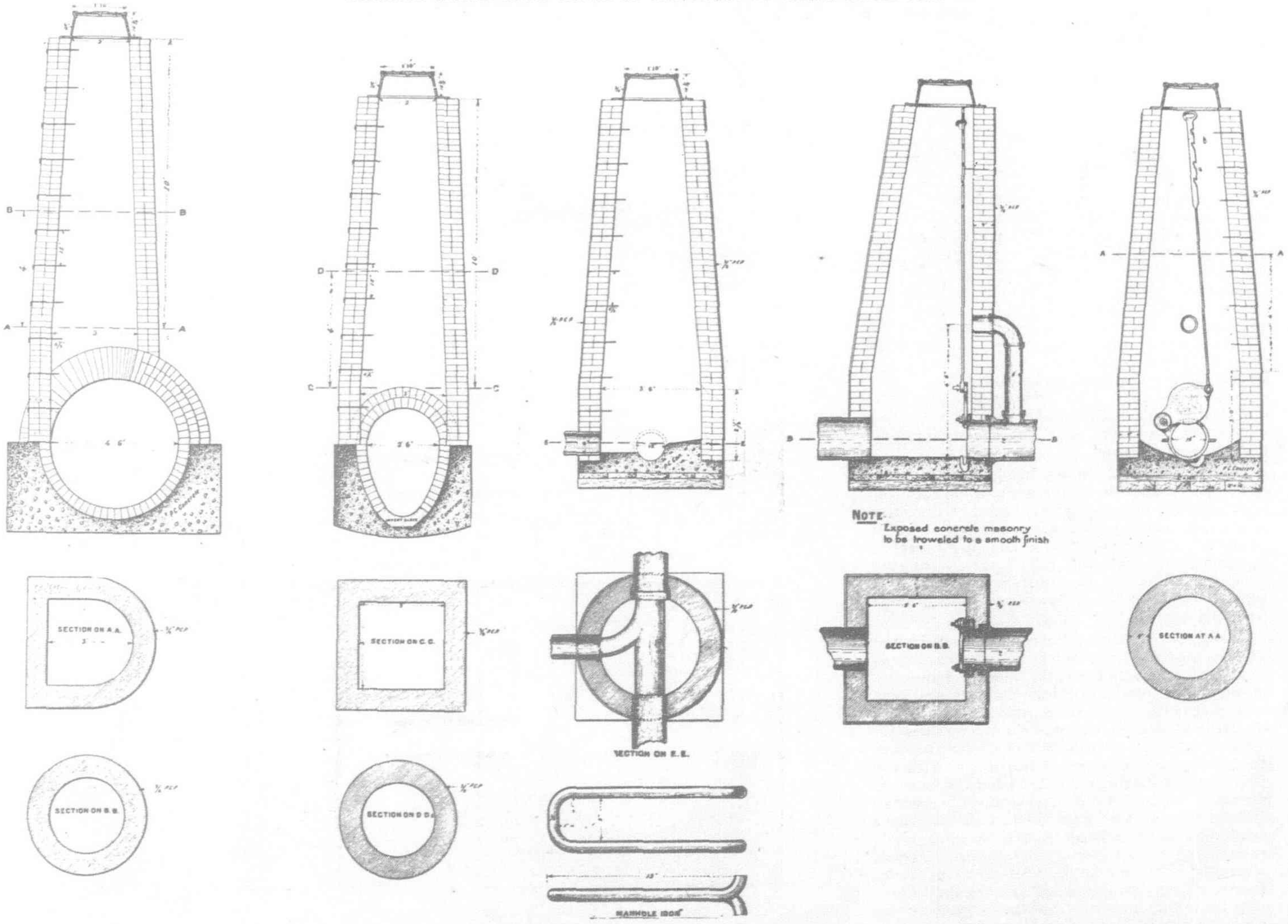
FLUSHING APPARATUS.—The contractor will be furnished at the city property yard with all sewer gates and other necessary flushing apparatus that may be required in the work. He will be responsible for all pavements and paving material, either in line of or adjacent to the sewer excavation, and he will furnish, put in place, and maintain such sheeting, bracing, etc., as may be required to support the sides of the excavation and prevent any movement which could in any way injure the masonry, diminish the width necessary for proper drainage, or otherwise injure or delay the work. Water-tight work will be required in all construction.

BRICKS.—Bricks used will be of the finest quality of whole new bricks, of uniform size, compact texture, hard burned entirely through, free from injurious cracks and flaws, tough and strong, and having a clear ring when struck together. They will have a crushing strength of not less than 4,500 lbs. per sq. in., and must not absorb more than 10 per cent of their weight of water af ter having been thoroughly dried.

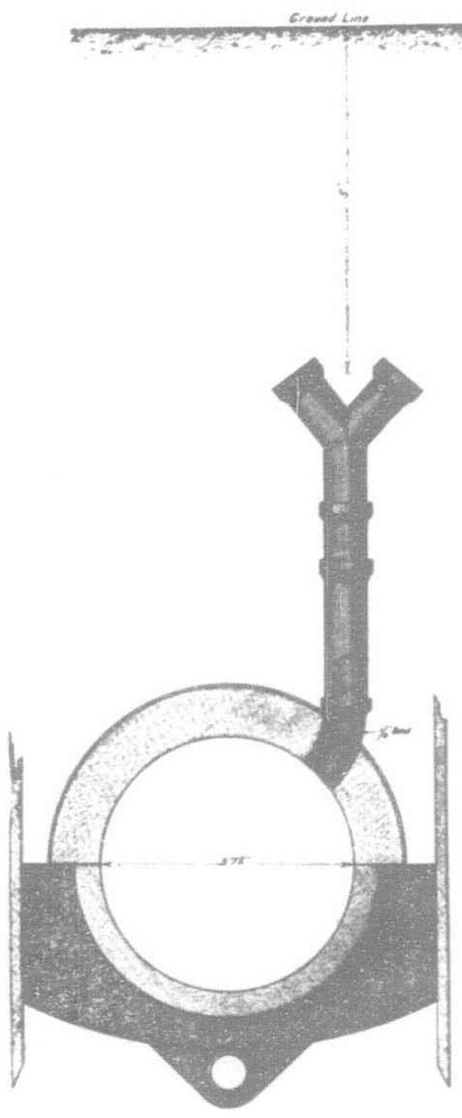
SEWER PIPE.—All vitrified sewer pipe and specials will be of the best quality, salt-glazed, vitrified stoneware. A thorough salt glaze, both inside and out, will be rigidly required. The pipe will be of the "hub-and-spigot" pattern, with corrugated, deep and wide sockets, and straight pipe 8 in. or over in diameter will lie not less that 2½ ft. long in the trench. The body of the pipe will have a uniform thick-

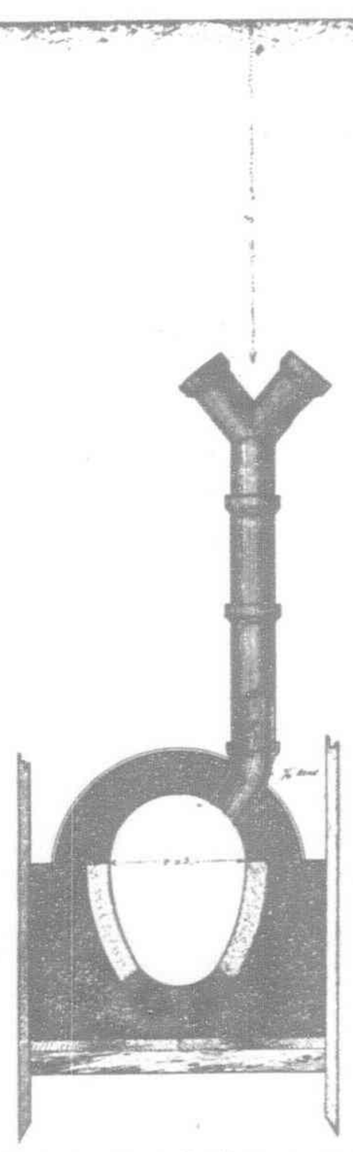


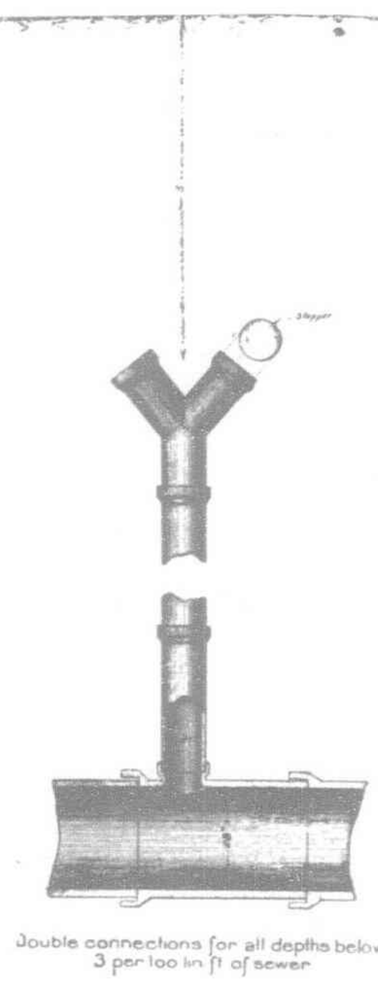
CROSSING UNDER PASIG RIVER AT THE HEAD OF CALLE NUMANCIA.



TYPES OF STANDARD MANHOLES.







HOUSE CONNECTIONS.

ness of not less than that given in the following table:

Size. *Inches.*	Thickness. *Inches.*
4	1/2
6	5/8
8	3/4
10	7/8
12	1
15	1 1/8
18	1 1/4
21	1 1/2
24	1 5/8

The area of all pipes and specials will not be less than that of a circle of the specified diameter, and the variation in diameter will not exceed 3 per cent and will in no case be more than ½ in. All hubs and sockets will be of a sufficient diameter to receive to their full depth the spigot end of the next following pipe or special, without any clipping whatever of either, and also to leave a space of not less than ¼ in. in width all around for making a joint. All pipes and spec, ials which are designed to be straight will nodeviate more than ¼ in. from a straight linet and bends will substantially conform to the degree of curvature and general dimensions that may be required.

INVERT BLOCKS.—Invert blocks will be constructed in a suitable mould, and will be composed of one part of an approved brand of Portland cement, 1½ parts of concrete sand, and 1½ parts of stone screenings, mixed and incorporated in accor dance with the provisions for mixing concrete. These blocks must be troweled to a smooth finish on the exposed face, and become perfectly hard before being used in the work.

CEMENT.—All hydraulic cement used in the various parts of the work will be known as Portland, and will meet the following requirements: Fineness: Not less than 95 per cent will pass a 50-mesh sieve, and not less than 90 per cent will pass through a 100-mesh sieve. Time of setting: It will require at least 20 min. to develop the initial set, when mixed with the smallest quantity of water between the temperatures of 70° and 80° F. Constancy of volume: Pats of neat cement ½ in. thick with thin edges immersed in water after "hard" set must show no signs of cracking or disintegration. Tensile strength: Briquettes of neat cement 1 in. square in cross section shall develop the following ultimate tensile strength: One day (in air until hard set, rest of day in water), 250 lbs.; seven days (in air one day, in water six days), 450 lbs.; twenty-eight days (in air one day, in water twenty-seven days), 550 lbs.

SAND.—All sand used in mixing mortar shall be of the best quality.

GRAVEL.—Gravel will be from the fine bank or river gravel, thoroughly screened, free from earthly or other foreign matter, and small enough to pass through a ring 1½ in. in diameter, and will contain more than 5 per cent of material which will pass through a No. 10 sieve.

CASTINGS.—All castings will conform accurately to the dimensions on the plans, and must be free from defects. They will be first quality soft, gray iron, without admixture of inferior metal, and when broken will show a sharp gray fracture.

CAST-IRON PIPE. No pipe of full length will be accepted whose weight is more than 2 per cent less than the specified weight, nor will the average weight exceed the specified weight by more than 3 per cent. The specials will be of the same class as the straight pipe.

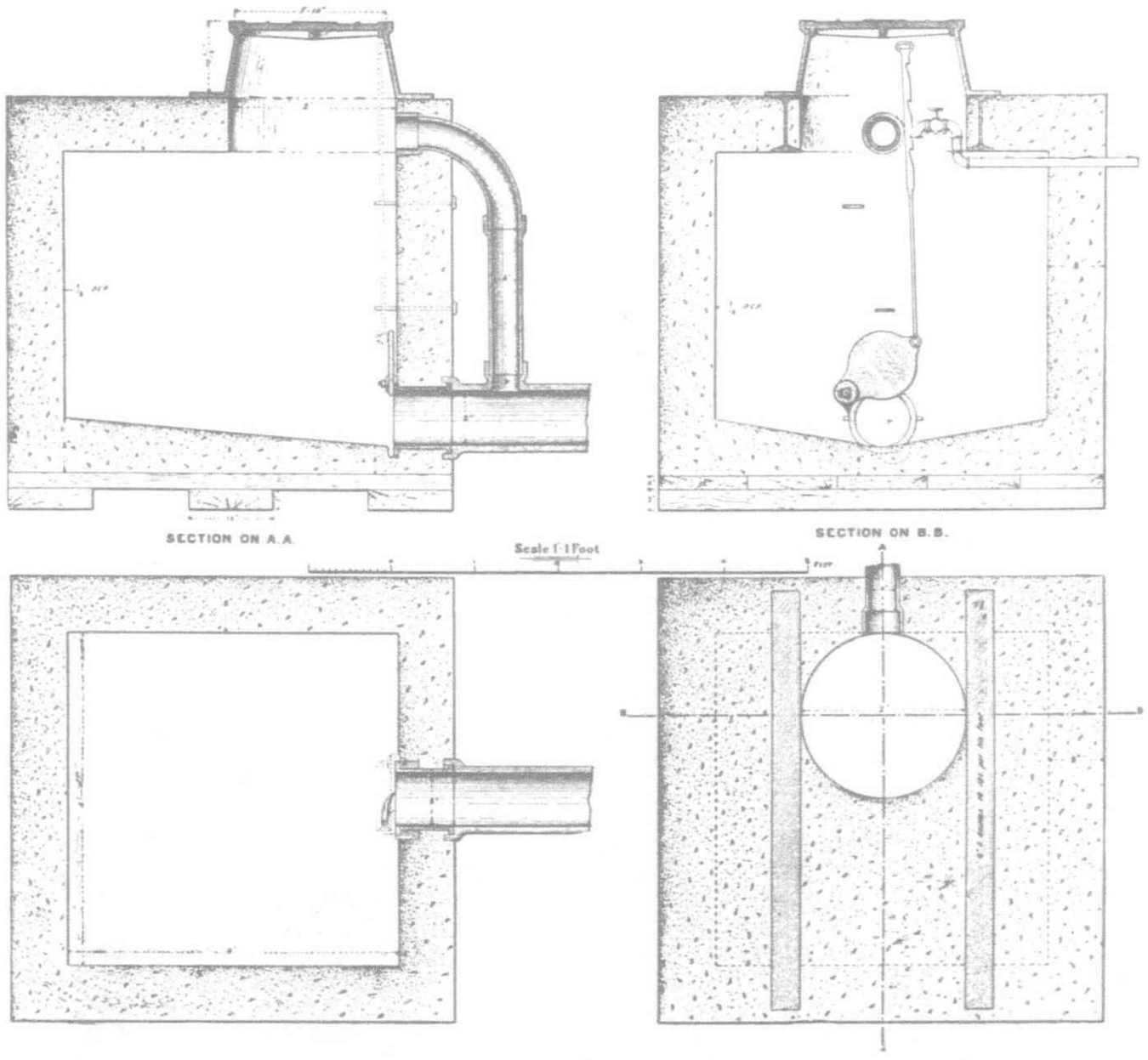
STEEL WORK.—Steel I-beams of the dimensions shown on the plans will be embedded in concrete to form the roof of each flush tank.

PILING.—Piles are to be not less than 8 in. in diameter at the small end, of live timber, straight and free from rot, large knots, wide shakes, and other defects They may be of Oregon pine or such other durable timber as the engineer may approve.

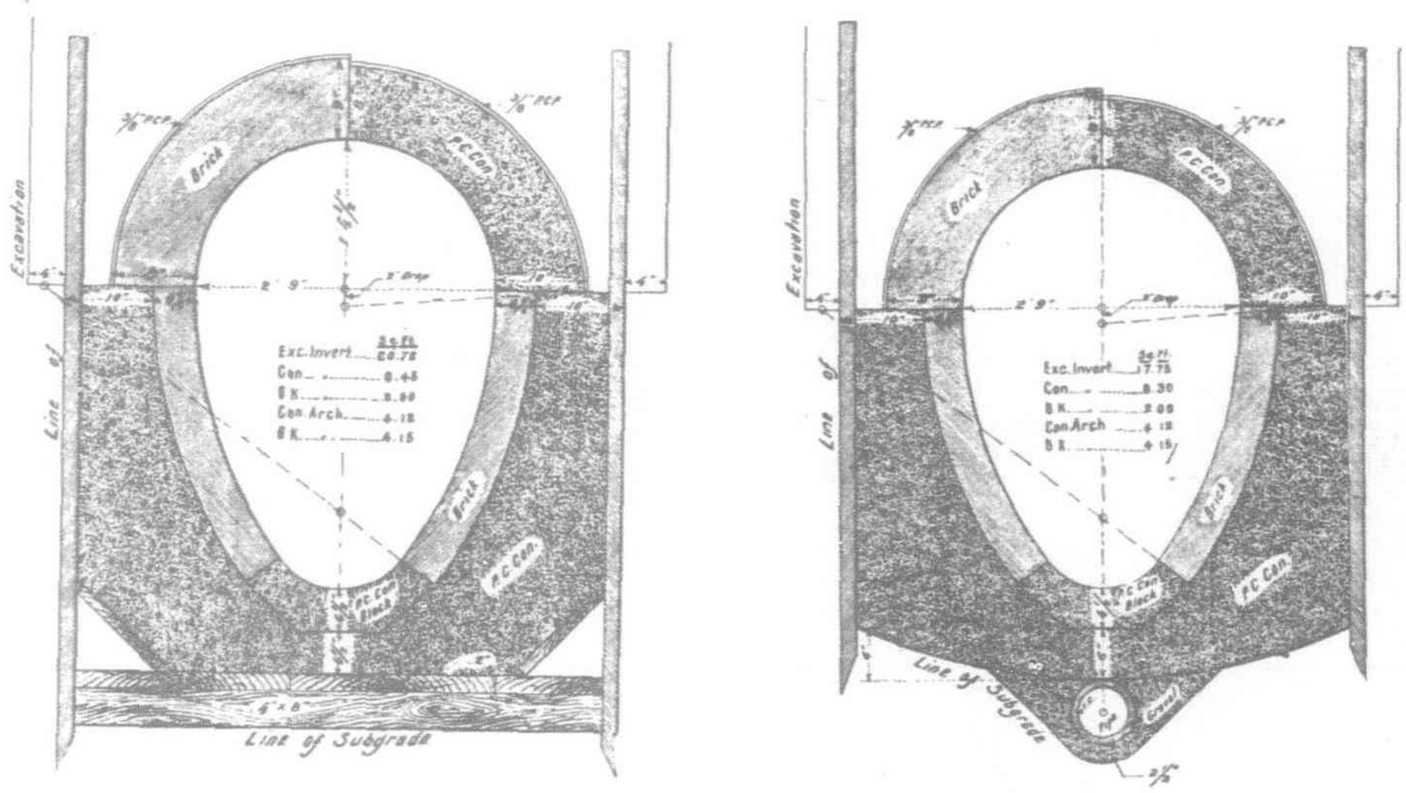
MORTAR.—Mortar used in this work, except that used in concrete masonry, will be composed of Portland cement in perfect condition and loose dry sand in the proportion of 1 bbl., weighing (net) 375 lbs., and 9 cub. in. of sand, thoroughly mixed dry, and a sufficient quantity of water afterwards added to make a rather stiff paste. It shall be used as soon as possible after the addition of the water. Mortar for pipe laying will be composed of a quick setting Portland cement, in the proportions by measure of one part of cement and one part of sand.

CONCRETE MASONRY.—Concrete masonry for use in all sewer construction will consist by measure of 1 bbl. of Portland cement (net weight 375 lbs.), 10 cub. ft. of sand, 20 cub. ft. of gravel, and water as directed by the engineer. Each batch of concrete will be spread in place in horizontal layers not exceeding 5 in. in thickness before ramming and will be at once thoroughly compacted by ramming.

MANHOLES.—Brick manholes will be constructed along the sewers wherever ordered by the engineer. The walls will generally have a thickness of 9 in. altough in special cases, where directed by the engineer, the thickness may be increased to 13 in. The price per cub. yd. of brick masonry in manholes is to include the plastering of the backs of the same with a ⅜-in. coating of cement mortar, the setting of all manhole frames and covers, the setting



TERMINAL MANHOLE AND FLUSH TANK COMBINED.



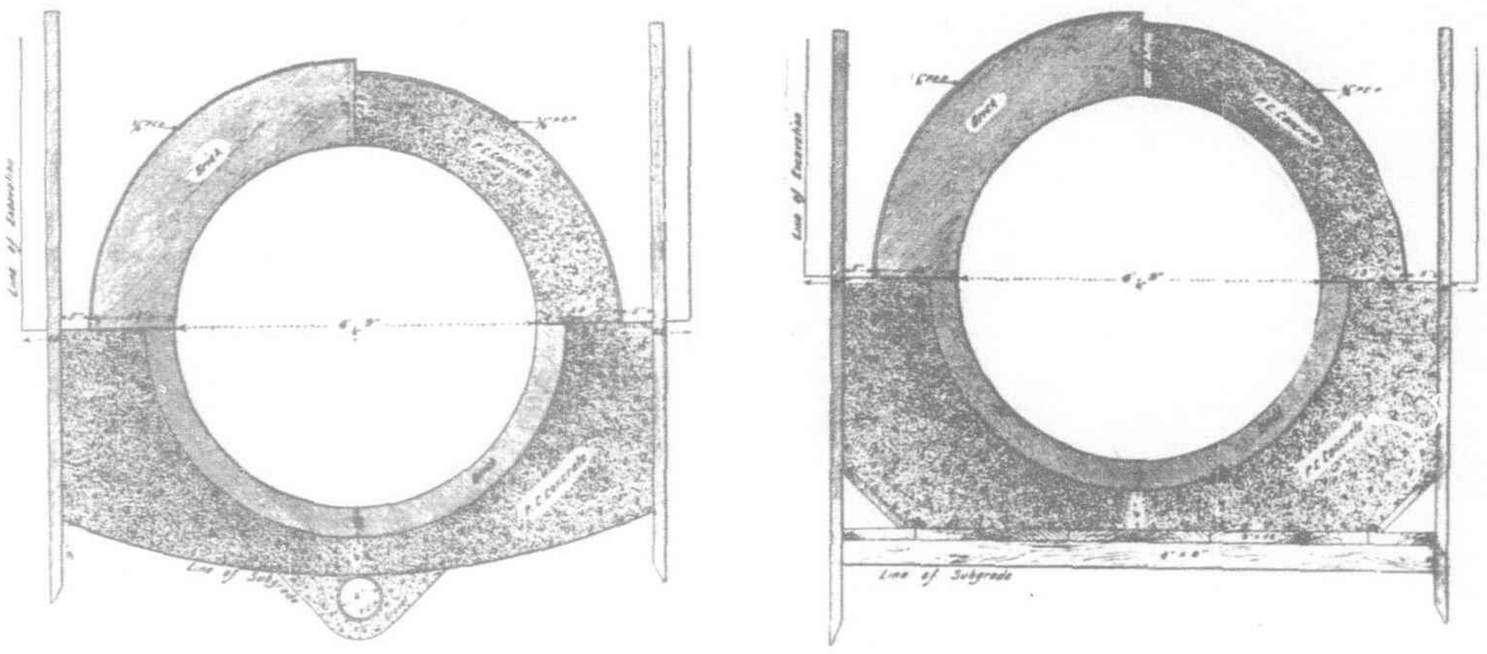
TYPICAL SECTIONS FOR EGG-SHAPE SEWERS

of any flushing apparatus that may be required, besides the furnishing and building in the brickwork of steps of wrought iron ¾ in. in diameter. Similar steps will be built into the sewer inverts at the manholes wherever directed. The bottom curves of all manholes will be neatly and accurately built, by using concrete masonry, concrete blocks, or brick in special cases, and so formed as to facilitate the entrance and flow of sewerage over them. All exposed concrete masonry in the bottoms of manholes or flush tanks will be plastered with a thin coating of cement mortar, and in every case troweled to a smooth finish.

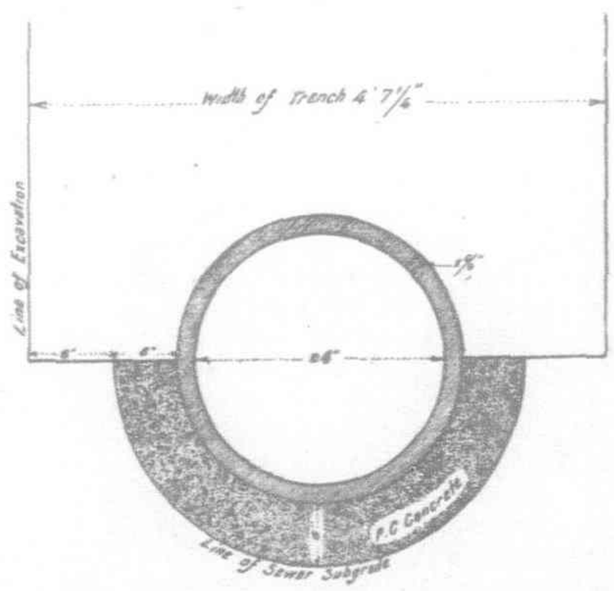
FLUSHING TANKS.—Flushing tanks will be constructed and located at all sewer terminals. Their depth from top of manhole cover to grade or sole of sewer inside may be assumed to be 5 ft. The price bid for flush tanks will be for the same in place, complete, including setting of frame, cover and flushing apparatus, the furnishing and setting of all manhole irons, I-beams, water-connection pipe, and ¾-in. faucet. The flush tanks will be made water-tight by the application of a coat of Portland cement mortar to the interior of the same.

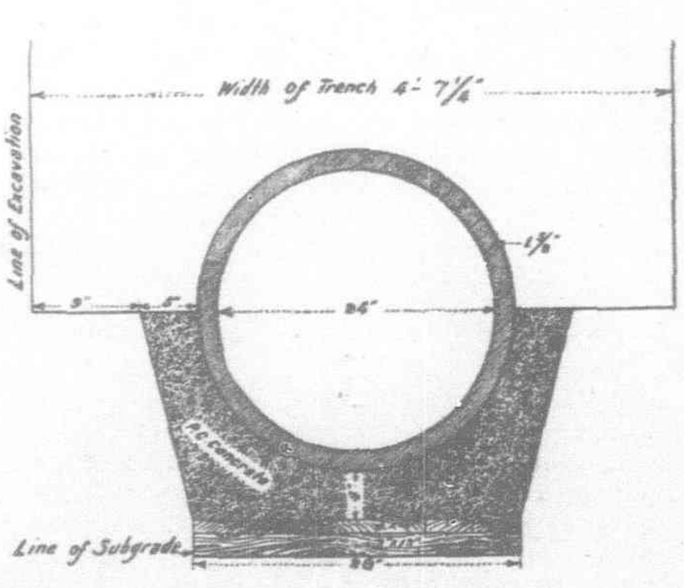
OUTFALL TERMINUS.—The terminus of the outfall into the bay will be constructed substantially as shown in details of the contract plans. The special cast-iron pipes forming the terminus will be carefully set and embedded in concrete masonry; the masonry resting on a timber platform supported by a group of piles.

RIVER SIPHON.—The siphon across the Pasig River will consist of two 24-in. cast-iron pipes, which will extend from a point near the SW. corner of the custom-house to the Maestranza laid in a dredged channel. All straight pipe used in this crossing will be composed of pipes with John F. Ward's flexible ball-and-socket joint, while all curved pipes have been designed for joints of the ordinary "hub-and-spigot" patterns. The contractor may be permitted, however, to use straight pipes with ball-and-socket joints on all curves, provided the pipes are furnished in such lengths that when laid in the trench they will practically conform to the curves shown on the contract plans. The contractor will also be permitted to introduce flexible-joint cast-iron pipe with joints of the Ward pattern at any *estero* crossing siphon, provided the pipe furnished is of the same thickness as that called for in the contract, and also provided that the city will be put to no extra expense for the introduction of the more expensive pipe. Sediment chambers, gate chambers, junction sections, and all appurtenances will be constructed at all points indicated on the contract plans and in accordance with the directions given by the engineer.



TYPICAL SECTIONS FOR MAIN SEWERS





TYPICAL SECTIONS FOR PIPE SEWERS

CONCESSIONS IN CHINA

The ensuing observations were written for the London *Times* by its special correspondent, Mr. J. O. P. Bland, the popular secretary of the Shanghai Municipal Council. The originals come to THE FAR EASTERN REVIEW from its Shanghai representative, who is uncertain as to whether or not the matter was ever published in the *Times*. The information, however, is of such interest, at present, that it is herewith taken up, the concluding part being held for the November issue of THE FAR EASTERN REVIEW on account of lack of space, with full credit to the *Times*. Mr. Bland's thorough insight into the situation, as it stood some time since, makes the facts set forth of great value. They follow:

I.

In a telegram sent on July 13th, 1898, to the British Minister at Peking Lord Salisbury expressed himself as follows:

"It does not seem that the battle of concessions is going well for us, and that the mass of Chinese railways, if they are ever built, will be in foreign hands is a possibility that we must face. One evil of this is that no orders for materials will come to this country. That we can not help. The other evil is that by differential rates and privileges the managers of the railways may strangle our trade. This we ought to be able by pressing that proper provisions for equal treatment be inserted in every concession."

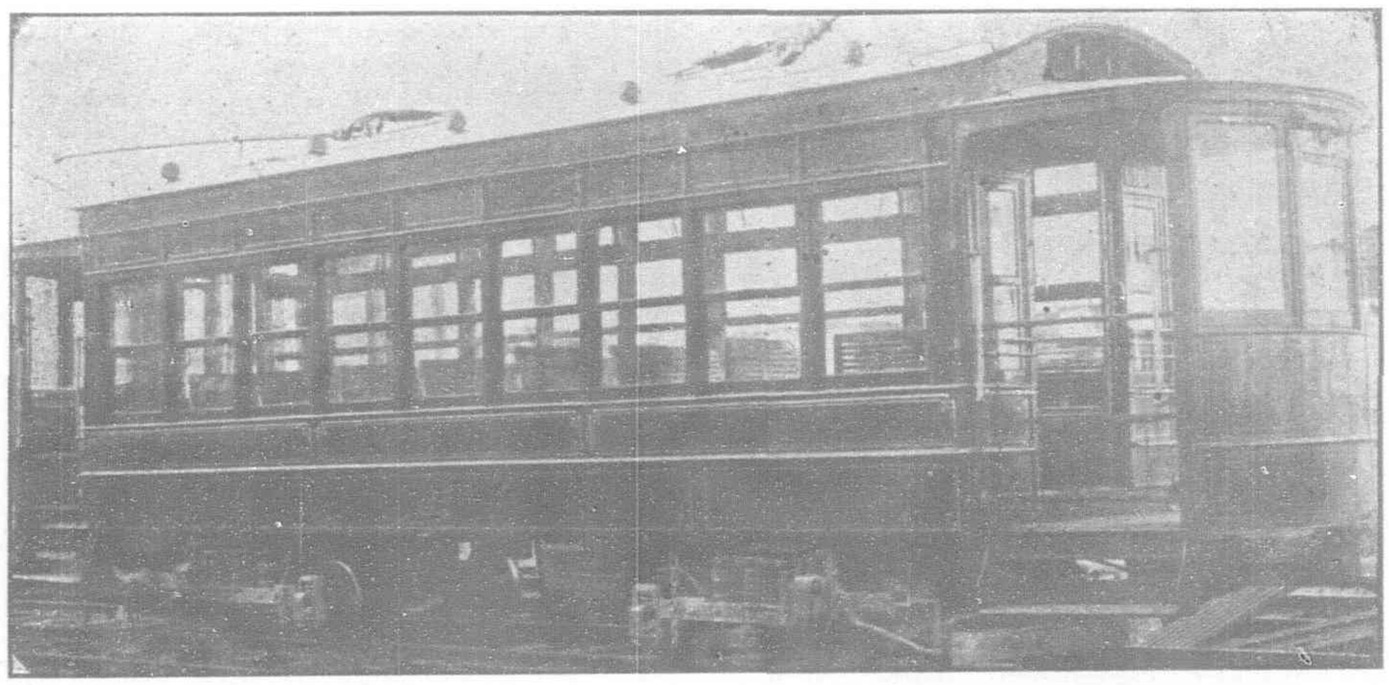
In reply Sir Claude MacDonald said:

"The battle is not, in my opinion, going against us, as your lordship suggests. Up to the present any concessions granted to other nationalities are far outbalanced in financial value by the Shansi and Honan mining and railway concessions, and by the Shanghai-Nanking railway concession with its possible extensions. I have consistently informed the Chinese Government that, as to differential rates and privileges, we want none ourselves, and can not admit that other nationalities have claim to them."

Thus the British Government in 1898. Looking back to-day on these views (even at that date subject to no little criticism) one is struck by their remarkable lack of "intelligent anticipation." Guided by the subsequent history of the Tientsin railway, noting the important part it played throughout the recent struggle, and observing the effect of the Manchuria railway on the political and commercial affairs of North China, we can only marvel at the official mind which complacently faced the possibility that "the mass of Chinese railways, if they are ever built, will be in foreign hands," and wonder at the satisfaction of his Britannic Majesty's Minister, cheerily comparing Great Britain's "score" of concessions with those of the other powers. Neither in Lord Salisbury's message nor in Sir Claude MacDonald's reply do we find anything indicative of appreciation of the fact that railway construction by foreign powers in Central China must entail consequences more far-reaching than loss of "orders for materials" or even the restriction of trade, nothing to show grasp of the simple truth that these thin lines of steel, running through and across the great Asiatic Empire

VESTIBULE ELECTRIC CARS, MANILA

The Manila Electric Railroad and Light Company is at present rapidly increasing its transportation facilities by the addition of splendid modern double-truck and double-trolley vestibule cars. This equipment is being supplied to the company by Messrs. J. G. White & Co., of New York, London and Manila, contractors and engineers, who constructed the Manila electric railroad and light system. The cars are of steel and teak, and are specially designed for tropical traffic. They each contain eighteen seats—nine on a side—and leading from vestibule to vestibule through the center of the car there is a wide aisle. The seats are comfortable and each one will accommodate two passengers. The motorman operates the car in the vestibule. This new rolling stock affords all the advantages given by the open cars with the additional one that it protects the passengers from rain during inclement weather. The Manila Electric Railroad and Light Company is leaving nothing undone to bring its service up to the highest standard, and it is safe to say that in no other city in the Far East is there a transportation system that can excel this one in the item of rolling stock.



VESTIBULE CAR, MANILA ELECTRIC RAILROAD SYSTEM

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mean so many claims effectively staked out for political influence in the near future.

The principle of "economic and geographical gravitation" (fully recognized in the Anglo-Russian Railways Agreement of April, 1899, and in our Wei-hai-wei "assurances" to Germany) appears then to have been entirely overlooked; nor in the Government's handling of this question to-day do we see any trace of its existence. I propose in the following résumé to bring the history of the "Battle of Concession" up to date; from that history, and from the existing situation, certain conclusions will, I venture to think, be brought home to the plain man.

At the time of Lord Salisbury's message above referred to, there was, as he then said, much anxiety in London in regard to three railways, viz., the lines from Peking to Hankau, from Shanghai to Nanking, and from Peking to Chin-kiang. With regard to the last named, which his lordship regarded as the most important, there occurs in a Foreign Office message of July 16, 1898, the following interesting passage:—

Great fear is expressed by a syndicate connected with the Hongkong Bank that, on the lapse of the present Chinese concession, it will fall into foreign hands. If they can get a subsidy from the British Government, they are prepared to offer for it. But they are not likely to get this.

Before that date—in April—Messrs. Jardine Matheson and Co. had already joined with the Hongkong and Shanghai Banking Corporation in the formation of the combination thenceforth to be known as the British and Chinese Corporation; in a letter to the Foreign Office, Sir Ewen Cameron foreshadows the labors of this "strong, representative, and influential syndicate," and, coming at once to business, saps:—The proposed line between Shanghai, Su-chau, and Nanking will, in the first place, engage our special attention. The line will run through one of the richest and most populous districts of China.

It will help to open up the country, and, as the line is sure to prove remunerative, it will also stimulate similar enterprises in other directions greatly to the advantage of British trade.

Thus matters stood in the summer of 1898. The new corporations were not by any means alone in these fields of British enterprise, even at that date; many were the hopeful pioneers—as the blue-books attest—who left cards and correspondence at the British Legation to mark a futile residence in the City of Dreadful Dirt; but it is no exaggeration of the facts to say, as your Peking Correspondent has frankly said, that "this favored corporation has been able since then to command almost a monopoly of the British Government's support."

Between April and August, 1898, Sir Claude McDonald was engaged with the Yamen in various negotiations on behalf of British interests. In many a preliminary agreement was signed between "Jardine's Syndicate" and Sheng Ta-jen for the Nanking railway, in regard to which it is interesting to note that the Minister said:—"They ought to get the concession, providing that they do not haggle over terms and delay matters."

On the 21st of the same month an agreement was made at Peking between the Peking Syndicate and the Shansi Bureau of Trade in regard to valuable mining concession in that province. At the same time overtures had been made for the trunk line concession from Peking to Han-kau. The history of that enterprise is so fresh in the public mind that I need not refer to it here; suffice it to say that China's breach of faith, in ratifying the so-called Belgian agreement, was made the occasion of a formal demand for compensatory advantages claimed by Great Britain. China, in compliance with this demand, consented "in terms of apology," on September 14, that the following lines should be constructed by British syndicates on terms not inferior to those of the Belgian concession, viz:-

1. Canton to Kau-lung (opposite to Hong-Kong).

2. Shanghai to Nanking, with extension via Chinkiang to Sinyang.

3. Hang-chau to Su-chau, with extension to Ningpo, if necessary.

The "Jardine Syndicate," as we have seen, had already made a preliminary contract for the second of these railways. The rights obtained under the above agreement were, however, specifically British and not individual rights—a point of great importance which, had it not been for the "monopoly of British Government support" given to the British and Chinese Corporation, should long since have proved valuable to Chinese and British interests alike. Though restricted in utility by that monopoly, the agreement still possesses protective force.

In November Lord Charles Beresford was at Peking, where his inquiring mind naturally turned itself to the question of railway and mining concessions. For his information Sir Claude McDonald placed on record, in an historic document, the total British "bag" up to November 2, 1898.

In a covering letter he observes:—"Herewith, as requested, the list of concessions granted to us up to date; also a list comparing what we have got with what other nations have. We do not seem to have come out second best." The total length of the lines named as British concessions he estimates at 2,800 miles, but, as the list includes the Han-kau-Canton railway and the Burma-Yunnan-Yangtsze system, it will require considerable revision whenever the profit and loss account comes to be balanced again.

The concession referred to in detail by the British Minister may be summarized as follows:-

1. The Peking Syndicate's concession in Shansi, North Ho-nan, and Che kiang.

2. The British and Chinese Corporation's concession for the Nanking railway and its possible extensions.

3. The British and Chinese Corporation's concession for the Su-Chau-Hang-chau-Ningpo railway.

4. The British and Chinese Corporation's concession for the Kaulung-Canton railway.

5. The British and Chinese Corporation's half interest in the Nan P'iao coal mines (near Shan-hai-kwan).

6. The Hongkong and Shanghai Bank's financial control of the Peking-Tientsin-Niuchwang system.

7. The British and Chinese Corporation's third interest in the Tientsin Chinkiang railway.

These, together with the above-mentioned interest in the Han-kau-Canton trunk line and the vague right to "extend the Burma system into China," complete the list. If we now inquire how these enterprises have fared since November, 1898, the result may be briefly expressed. In the words of your Peking Correspondent:—"Not a foot has been sunk in any mine nor a sod turned of any railway in all these vaunted concessions." Yet all these years and to this day they have blocked the way for others, and the failure of these British syndicates to carry out their written agreements has not only affected our good name in China, but has prejudiced the whole cause of bona fide industrial enterprise.

And who is to blame? Partly, no doubt, the Government, which has failed to recognize certain stern but obvious facts inherent to the question, chief of which is the impossibility of separating its commercial from its political aspects; partly, also, the concessionaires, whose apparent object has been to float these concessions on the market at some favorable opportunity, and who, failing that opportunity, are content to bide their time, regardless of the political and commercial considerations involved, and relying on their "monopoly of Government support" to prevent others from taking over the work. That the Boer war and the Boxer troubles have affected the market may be admitted; yet from the Chinese point of view—and these, after all, are Chinese railways and mines—the fact remains that Belgians, Americans, and French, not to say other British combinations, are ready and willing to take over concessions which these British syndicates have been unwilling either to surrender or to develop. It is obvious that such a state of affairs cannot continue indefinitely. The British Minister appears to have realized at an early stage of the proceedings how matters stood. On August 21, 1898, in a telegram to Mr. Balfour, he observed:—"The negotiations for the Yangtsze railways have been much delayed and I myself have been greatly embarrassed by the absence of the syndicate's engineer, who was due a month ago and has not arrived

yet." On September 30 he telegraphed to Lord Salisbury in regard to the Peking Syndicate's inaction.—

An exceedingly bad impression has been created here, and any future British undertakings in this country will be detrimentally affected by the fact that the syndicate has not yet commenced operations.

The agreement was signed on May 21 last, and in April, at the request, and relying on the assurances, of M. Luzzatti, the Syndicate's agent, the Italian Chargé d'Affaires, and I informed the Chinese Government that the engineers, machinery, and money were all ready, and the commencement of work was only awaiting the signature of the agreement.

The Chinese Government, entirely failing to appreciate the exigencies of western finance, came to the unavoidable conclusion that the contracts signed with these syndicates were binding on one side only; it was therefore hardly a matter for surprise that in December an edict was issued to the effect that, in the words of a Legation despatch, "the Chinese Government will grant no new railway concessions on any conditions, until some of the lines already granted have been contructed." In a subsequent edict on mining concessions, dated July 30, 1899, the following noteworthy passage occurs:—

The present regulations provide that all enterprises must be commenced within six months from the date of sanction, under penalty of cancellation, but it is also provided that special cases are excepted from this rule. The result is that pretexts for delay are advanced so as to make a show of marking out claims without commencing genuine operations, and it is now necessary to define a strict limit of time. From the date of sanction the total limit shall be ten months, and, no matter whether there are any special reason or not, if this period is exceeded without operations being begun, the sanction given shall be cancelled.

That there was reasonable necessity for such provision by the Chinese Government, ever abused for necessary delays, must be admitted; but it is a curious fact that they should in the first instance have signed preliminary agreements without any time limit.

The position of affairs indicated in these edicts remains practically unchanged to-day. There are, it is true, at this moment of writing, certain signs of unusual activity in London—to which I propose to refer later—but if Jardine's Syndicate's latest proposals (December, 1901), for an amended Nanking railway agreement, are to be taken as indicative of their serious intentions, the time for British enterprise in China, under these auspices, is not yet.

I propose in another article to describe briefly the position of the concession referred to in Sir Claude MacDonald's list of November 1898; to point out the causes which have led to the present impasse and, if possible, to point a moral which may appeal to the unofficial mind.

II.

The list of British concessions compiled by Sir Claude MacDonald in November, 1898, as has been shown, practically refers to the agreements made by the Chinese Government with the Peking Syndicate and the British and Chinese Corporation. The only other combination mentioned is the Yunnan Company; but our admitted right to extend the Burma railway system via Yunnan to the Yang-tsze is likely to remain unexploited so long as expert opinion in regard to the financial possibilities of the scheme remains as at present. For all practical purposes it will, therefore, suffice to review the Peking Syndicate's position and that of the British and Chinese Corporation.

Of the Peking Syndicate's Shansi and North Ho-nan concessions it will be remembered that the British Minister's opinion of their financial value has been recorded in glowing terms. That the great coal and iron fields included in the syndicate's agreements are rich and easily workable is beyond question; for practical purposes, however, the value of the concession in foreign hands depends entirely on the facilities provided for transporting minerals to the Yang-tsze. In an article published on this subject in *The Times*, August, 1898, the present writer made the following observations:

It is obvious that the value of these mining rights must depend to a very great extent upon the firmness or complaisance which may hereafter be shown by the British Government not only in dealing with the Chinese, but with those Powers whose evident object it is to close the door on every kind of British enterprise. The best opinion in China as to the value of the Anglo-Italian (Peking) syndicate's concessions are agreed that, if energetically exploited and supported, they must undoubtedly prove of great industrial importance and lead to a much-desired opening up of a large area of country hitherto untapped. There exists, however, at the same time, a widely-spread impression that the present enterprise is connected rather with the field of finance at home than with that of genuine enterprise in China, and it is generally felt that the promoters of the "Peking Syndicate Limited" are more concerned with the successful floating of the Company in London than with the future development of the resources of Shan-se. As regards the export of fuel to the Yang-tsze and coast ports, the future of Shan-se as an important source of supply will entirely depend upon the adequacy and directness of the routes of communication established.

These views have been largely confirmed during the past four years, though it is only fair to state that under its present organizations and control the Peking Syndicate's operations have been entirely removed from the sphere of speculative finance to that of a bona fide commercial and industrial undertaking, and that for some time past everything possible has been done by the directors and their able representative in China (Mr. George Jamieson, C. M. G.) to remove the disabilities which have hitherto blocked all progress. A party of engineers is now on its way to the mines, there to commence operations by the construction of a railway from Tsechou to Weihui on the Grand Canal, to connect hereafter with the Luhan railway running south to Kaifengfu. Space does not permit me to describe at length the protected and hitherto futile efforts made by the syndicate, since its abandonment of the Siang-yang route to the Han river, to establish direct communication between the mines and the Yang-tsze, but a brief explanation of the facts is necessary. By Article 17 of the Shansi contract it was agreed that:—

Whenever it may be necessary for any mines to make roads, build bridges, open or deepen rivers or canals, or construct branch railway to connect with main lines or with water navigation to facilitate transport of Shan-si coal, iron, and all other mineral products from the province, the syndicate on reporting to the governor of Shan-si is authorized to proceed with the works, using its own capital, without asking for Government funds.

The syndicate, realizing that to bring its products northwards to Tientsin was, financially and practically speaking, impracticable, naturally interpreted this clause, from a common-sense stand-point, to imply "water communication" of a satisfactory nature. The Chinese Government, however, swayed by a certain political influence brought to bear upon them at Peking, denied this right. Eventually, as part settlement of the Lu-han "breach of faith" episode, the syndicate obtained permission to construct a railway from the mines to the Han river "as an outlet to the Yang-tsze," but this route had to be abandoned later on economic ground. The right to connect the mines with the Yang-tsze having been specifically admitted, it might have been supposed that to exchange one route for another should not have been a task beyond the resources of British diplomacy, yet the fact remains that for the past four years the Chinese Government has been able to nullify the spirit and the letter of their agreement. The fact will be found fully recorded in the Blue-books, in which it is shown that the Siang-yang route was arranged with the Yaman on the undertaking that the place was in navigable communication with the Yang-tsze, a condition which subsequent inquiries proved only to be adequately fulfilled at certain seasons of the year. The Chinese Government's chief objections to the Pokou line have been based on its possible competition with the Luhan railway; a glance at the map will show what this consideration is worth. A further objection has been raised—and, unfortunately, allowed to stand—that the syndicate's mining operations should precede construction of railways; but, unless the products of the mines are to accumulate indefinitely at the pits' mouths, it is difficult to see why such an argument should be seriously considered. That our Foreign Office failed to insist on the fulfilment of the syndicate's contract by China is matter for regret, and proves that the importance of the concession, in its relation to British interests in Central China, has not been realized. In the absence of direct communication with the Yang tsze, work of development was necessarily checked by the state of affairs existing in Shan-si and Ho nan during the Boxer rising; but with the restoration of order it is imperative, unless this valuable concession is to pass out of the British control, that our Government should insist on the contract being made effective without further delay.

As regards the British and Chinese Corporation's agreements the case is different. Definite preliminary contracts were entered into by the corporation in 1898 for the construction of the lines from Shanghai to Nanking, from Canton to Kau-lung, and from Su-chau to Hang-chau. Another agreement was made, in combination with a German syndicate, for constructing and financing the trunk line from Tientsin to Chin-kiang; no satisfactory explanation has yet been given, either by the corporation or by the British Government which demanded these concessions, for their non-fulfilment. Their existence has been officially used by the Legation as a reason for not supporting rival British undertakings. It is difficult to set side the fact that Belgian, French, and American capital has been forthcoming for enterprises specifically undertaken on terms not more advantageous than those of the corporation's agreement. Again it cannot be denied that active operations on the Han-kau-Canton railway, in which the British and Chinese Corporation was originally interested with the American syndicate, would not have been taken in hand by the latter had it not been for the introduction of a predominant Belgian interest in the undertaking.

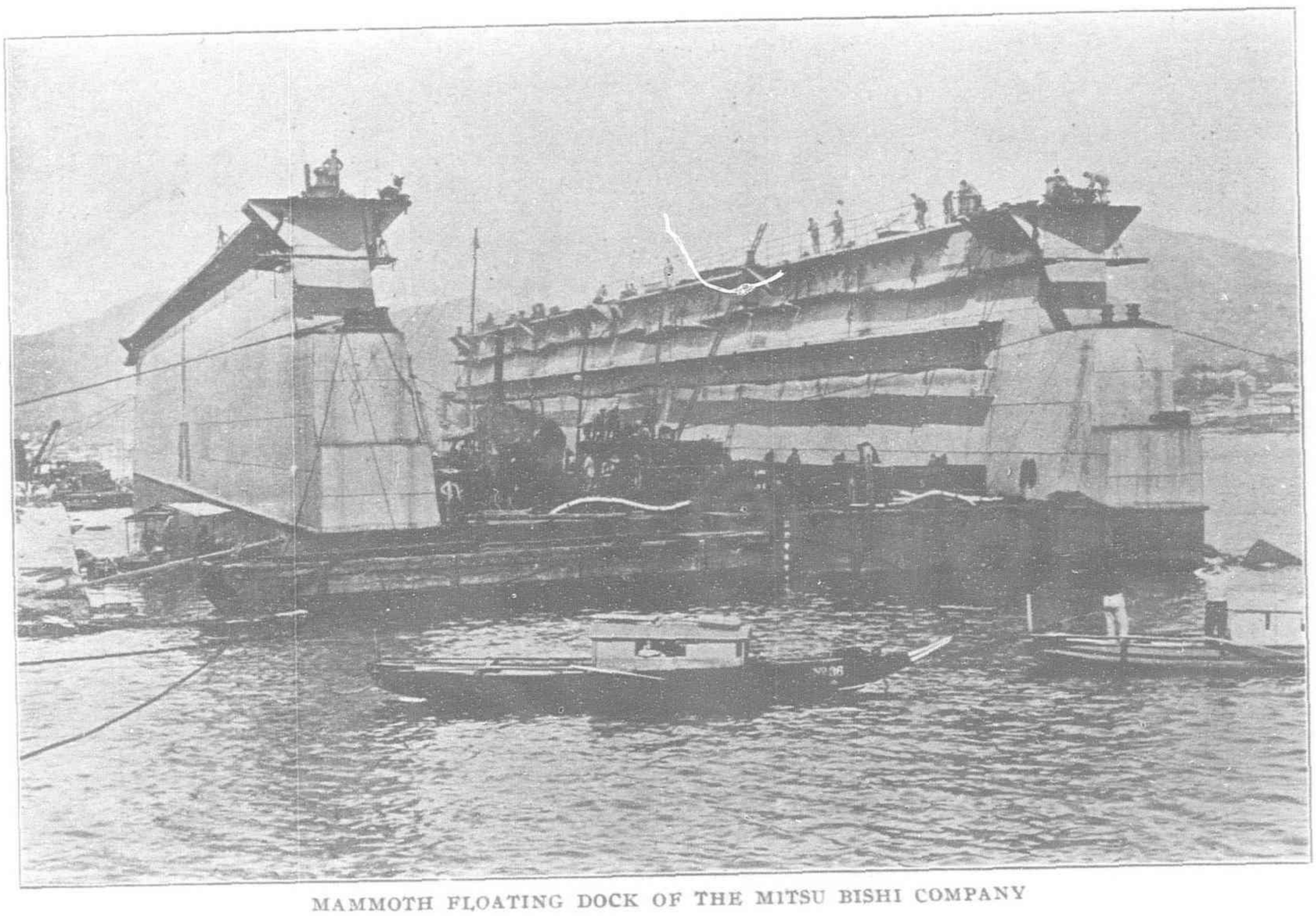
(How that Belgian interest was secured in New York space does not permit here to tell, but the episode throws an instructive sidelight on the unseen political undercurrents affecting this question).

(To be continued)

S. C. FARNHAM, BOYD & CO. LTD

In our August issue we published an extract from the *Trade Report and Returns of Tientsin*, 1904, emanating from the Imperial Commissioner of Customs at that port. Under the sub-heading dedicated to the material progress of the port, the commissioner states as follows: "An enterprise of some magnitude was started during the year of a lighter service under the direction of Messrs. Butterfield & Swire, consisting of seventeen lighters and four powerful tugs built in Europe and sent out in sections, which were fitted out in Shanghai and then sent oversea to Tientsin." In justice to Messrs. Farnham, Boyd & Co. Ltd., and their high reputation for constructing boats of this class, we take opportunity to point out that the four large tugs, hulls, boilers and engines, were built entirely at the works of the firm at Shanghai.

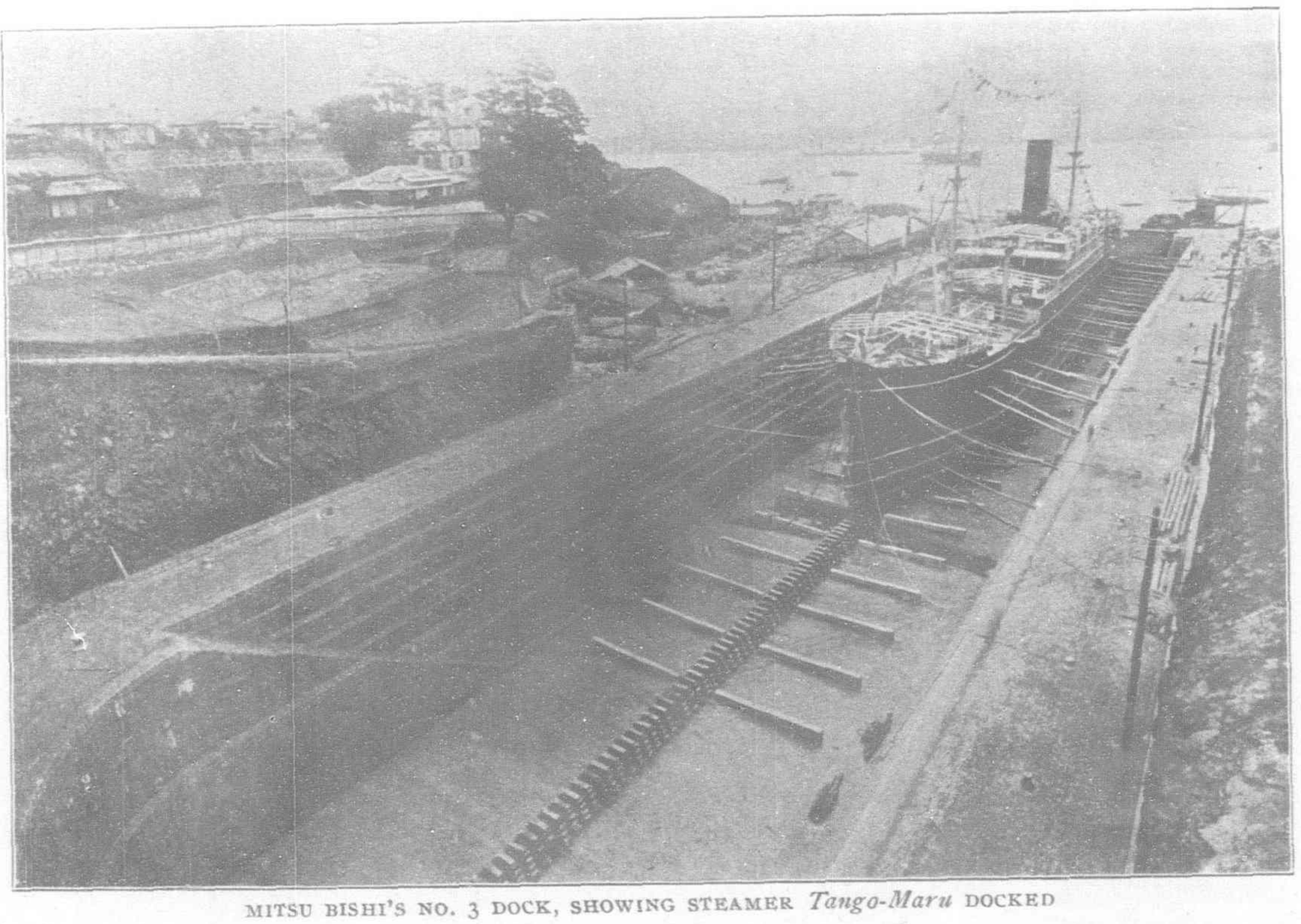
SHIPBUILDING ENTERPRISE OF THE MITSU BISHI COMPANY IN JAPAN



MAMMOTH FLOATING DOCK OF THE MITSU BISHI COMPANY

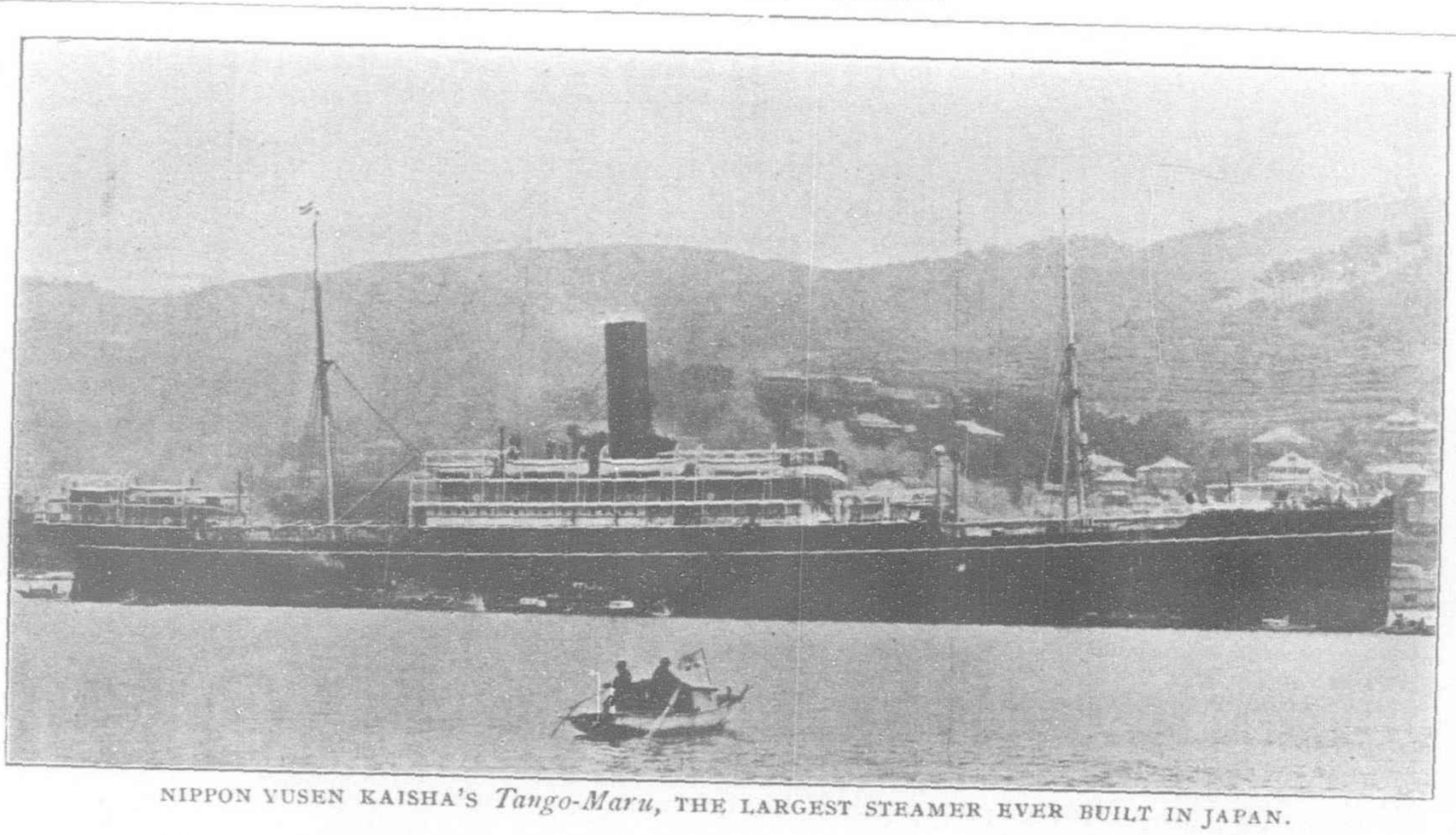
The greatest surprise which we can imagine a stranger, visiting Nagasaki for the first time, says *Cherry Blossoms*, the *Nagasaki Press* monthly, could experience, would be when told on entering the harbor that on the western shore was a shipyard which has the distinction of having built the largest steamship ever constructed in an Asiatic yard, possibly the largest drydock E. of Suez, and capable of constructing a floating dock with a lifting power of 7,000 tons. * He looks away to the spot indicated, and the only structure which appears to him to be commensurate with such performances is a huge shears; the building looks nothing, and hills appear to rise too abruptly from the water's edge for such things to be possible. Looking more closely, the stranger is astonished to see the funnel and masts of a large steamer rising up from the bluff, and then he begins to think there may be some truth in the statement.

LARGEST STEAMER EVER BUILT IN JAPAN.—The largest steamer ever built in Japan is *Tango-maru*, constructed by the Mitsu Bishi Dockyard and Engine Works for the Nippon Yusen Kaisha (Japan Mail Steamship Company). The keel was laid down in February, 1905, and, in spite of hindrances caused by the war, the hull was launched on December 12th, 1904. The steamer was built and engined to meet the requirements of Lloyds' and the Japanese Shipbuilding Act, and she is registered at Lloyds' 100 A1. Her dimensions are as follows:



MITSU BISHI'S NO. 3 DOCK, SHOWING STEAMER *Tango-Maru* DOCKED

* Illustrations courtesy of *Cherry Blossoms*



NIPPON YUSEN KAISHA'S *Tango-Maru*, THE LARGEST STEAMER EVER BUILT IN JAPAN.

—Length between perpendiculars, 445 ft.; breadth, 52 ft.; depth, 33 ft. 6 in. The gross tonnage is 7,463 tons, and the indicated horse-power 6,503. The specifications of the vessel called for a speed of 15 knots, but on her trial trip she made 15.6, quite a substantial increase. Her dead-weight capacity is 7,300.

This steamship was intended for the Nippon Yusen Kaisha's Seattle service and was fitted to take 60 first-class, 24 second-class, and about 300 steerage passengers. The cabins, saloons, etc., were constructed and furnished on the most modern principles, and there can be no doubt the vessel would have proved a formidable competitor to the best foreign steamers on the route. Unfortunately, when completed, the government chartered *Tango-maru* for the transport service, and builders and owners lose a splendid advertisement which the first voyage of such a fine vessel would undoubtedly have proved.

MITSU BISHI'S NO. 3 DOCK.—The No. 3 dock is a striking illustration of the foresight displayed by the management of the company in the conduct of its business. It was commenced in January, 1902, at which time there was no merchant vessel built or building long enough to fill it by 100 ft. It can accommodate any vessel at present afloat, including the White Star liner *Baltic*. The accompanying illustration of *Tango-maru*, in dock shows how far ahead the docking capacity is of Japanese shipping. On June 26th last, the Great Northern Steamship Company's mammoth steamer *Minnesota*, of 20,718 tons, was docked in it, and there was more than 80 ft. to spare in length and an equivalent space in breadth. This is the only dock on this side of the Pacific capable of accommodating *Minnesota*. There is a dock in Seattle large enough to take the vessel, but the steamship company preferred that the first annual inspection by Lloyds' surveyor should take place at Nagasaki. The officers of *Minnesota* were greatly surprised at the ability shown by the dockyard officials in docking their ship. Only 40 min. elapsed between the time that the vessel left the buoy in mid-stream and the starting of the pumps for emptying the dock; and there are few mercantile ports in the world where *Minnesota* could be docked at low tide as she was in Nagasaki.

The No. 3 dock was 3 yrs. and 2 mos. in course of construction; a long period, but it must be remembered that the whole of the dock was hewn out of solid rock, the greater portion of the work being done by blasting. The dock holds about 76,000 tons of water, necessitating the most up-to-date pumping arrangements, and it is needless to say that they are there. The extreme length of the dock on the bottom is 722 ft., on blocks 714 ft.; width of entrance on top 96½ ft., on bottom 88½ ft.; water on blocks at spring tide 34½ ft.

MAMMOTH FLOATING DOCK.—The floating dock was constructed by the Mitsu Bishi Company for use at the repairing yard it has established near Kobe. The scarcity of land at Nagasaki for the extension of its dockyard, and the ever-increasing importance of Kobe as a commercial port are the two main reasons which induced the company to start operations at the northern port.

The Mitsu Bishi Company's floating dock was commenced in April, 1903, and completed in June, 1905. It is constructed entirely of steel, and it is patent to a tyro in shipping matters that the launch of such an affair must have been a matter of great concern to the builders. The dock rests upon five pontoons, and it is usual to launch floating docks section by section putting them together when afloat. This method, however, did not satisfy the company and it decided to attempt to launch it as a whole. To this end a special slipway was designed, and on May 4th, 1905, the builders had the satisfaction of having created a record by the successful launching of a floating dock, entire.

The dimensions of the floating dock are as follows:—Length, 387 ft. 6½ in.; length over all, 412 ft. 6½ in.; breadth, 85 ft. 0½ in.; depth, 41 ft. 7¼ in. Its lifting power is 7,000 tons. Before departure from Nagasaki the floating dock was tested in the harbor. The company's steamer *Fukura-maru*, 1,938 tons, was successfully drydocked, the entire operation, including the sinking of the dock to receive the vessel, taking only 4½ hrs. On July 5th the dock left Nagasaki for Kobe, being towed by *Fukura-maru*, and reached its destination in safety four days later.

BRIEF HISTORY OF THE COMPANY.—In 1855, the Tokugawa Government requested the Dutch Government to supply them with the machinery necessary for the equipment of a shipyard, also to send out skilled artisans as instructors for the Japanese. Men and machinery arrived at Nagasaki in 1857 and work was commenced at Akunoura, the village where the main offices and the engine works are now situated. These works were completed in 1861, and were intended solely for repairing and instructional purposes. In 1862, the authorities made an application to the Dutch Government for workmen and equipment to start a shipbuilding yard. Two years later, the erection of a building yard was commenced at Tategami, a village separated by a small hill from Akunoura. Preparations were made for building men-of-war but only a few unarmed steamers were constructed, the yard being used mainly for repairs. In 1876, the *Kosuge-maru*, a steamship of 1,500 tons, which is still in use, we believe, was laid down at Nagasaki. Eight year later the ownership of the dockyard was transferred from the government to the Mitsu Bishi Company, under whose control the business has prospered so much as to leave it almost without a serious rival in Japan, or indeed in the Far East.

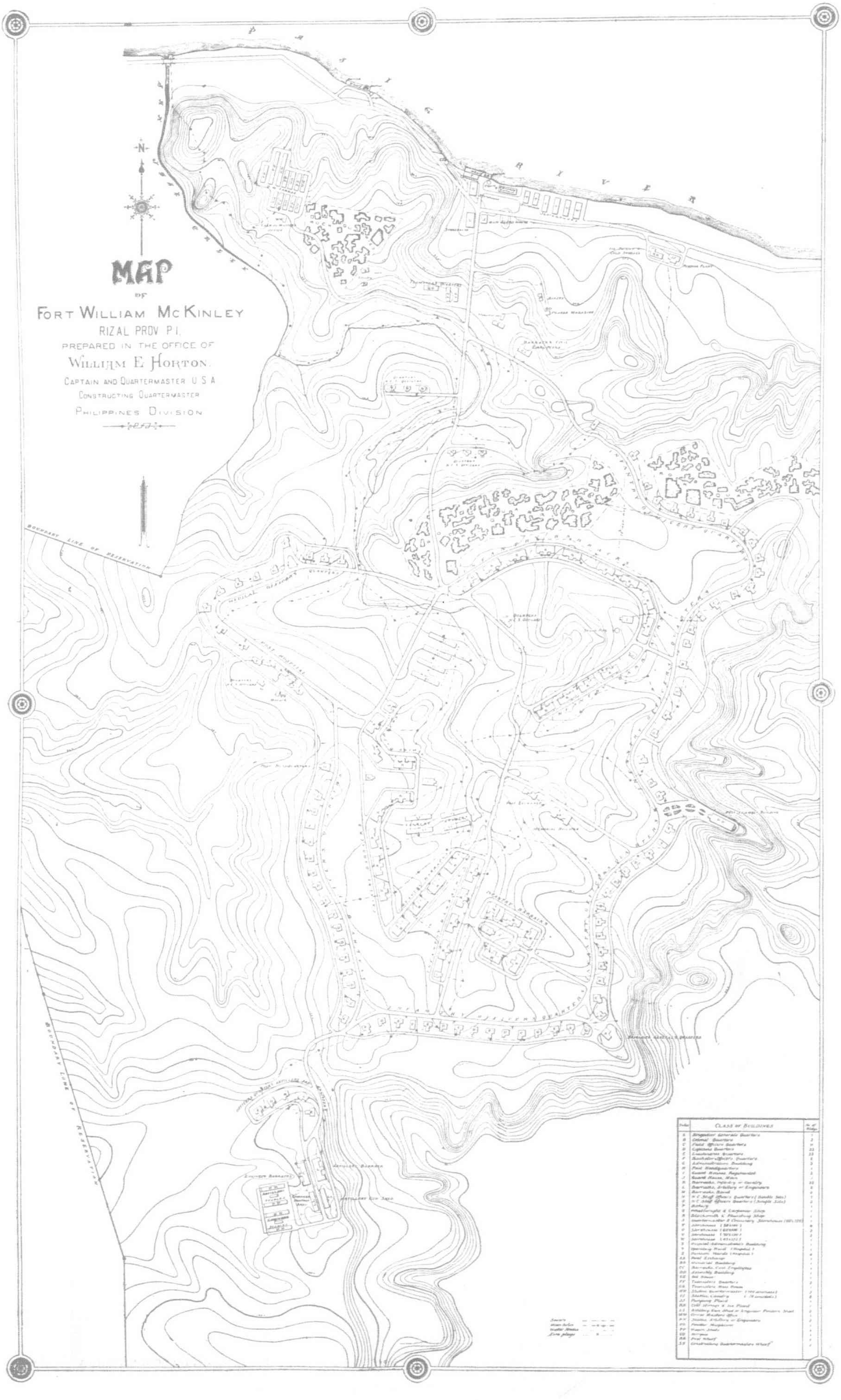
The next few years should witness a wonderful progress in the quantity of work turned out. Contracts were recently signed for the construction of two steamers of 13,000 tons each for the Toyo Kisen Kaisha, to be completed in 1907, and one of 7,000 tons for the Nippon Yusen Kaisha.

WHANGPU CONSERVANCY

The agreement of the Whangpu Conservancy Board proposed by China and endorsed by the diplomatic body has, after long delay and discussion, been signed, according to *The Celestial Empire*, and the River Whangpu will now be properly improved. The improvement will be under the joint supervision of the Shanghai taotai and commissioner of Imperial Chinese Maritime Customs in Shanghai, and the expenses thereof will be defrayed by the Chinese Government at the rate of Tls. 460,000 *per annum* for 20 yrs., the income of opium taxes of Szechuan and of Hsu Chow-fu of Kiangsu being the security. The new conservancy board will have charge of the river police, light-houses, light-ships, pilots, buoys and quarantine, while it retains the right of giving permission to build hulks, docks, jetties, etc. It is also stipulated that the new board has the right to replace private anchorage by public anchorage. The board has also the right to buy necessary land and sell the land reclaimed. The value of the land to be appropriated will be decided by a commission of three persons—one nominated by taotai and customs commissioner, one by the consul who represents the nationality of the land owner, and one by the senior consul; and when the consul who represents the landowner's nationality is senior consul the second oldest consul will nominate the third commissioner.

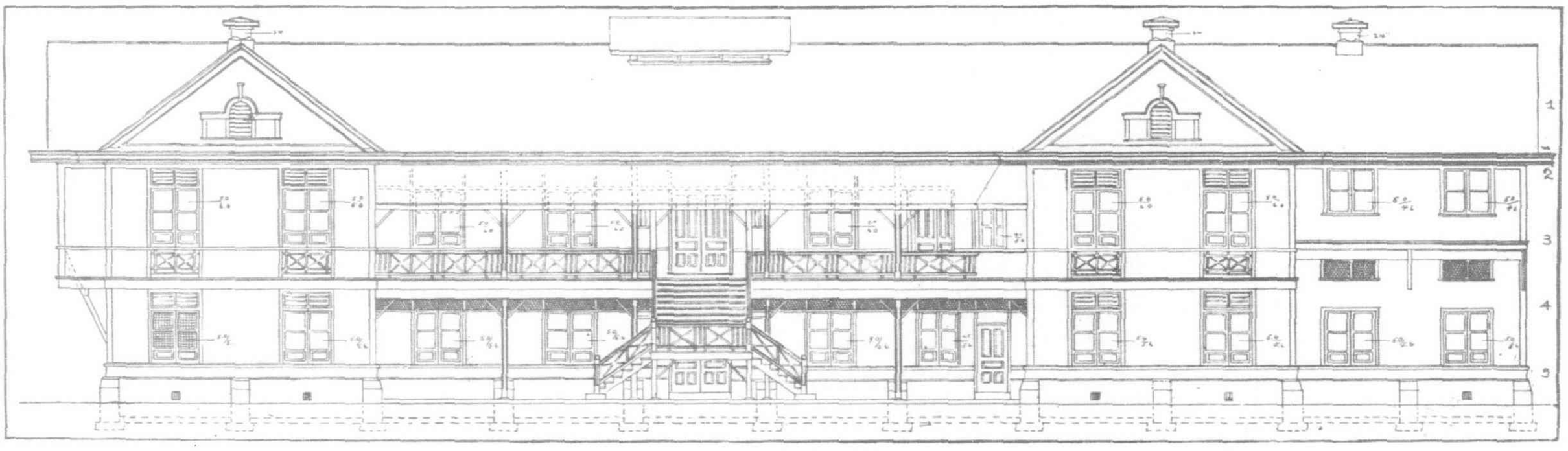
The improvement work will be commenced 3 mos. after the signing of the agreement—September 27th—and the engineers may be appointed and dismissed by the board, but the approval of a majority of the diplomatic body is made necessary. The consular body in Shanghai has the right to propose to dismiss engineers if it thinks the engineers unfit for the work.

The conservancy board must report upon the works and expenses thereof to the consular body every 3 mos.


MAP
OF
FORT WILLIAM McKINLEY
RIZAL PROV P.I.
PREPARED IN THE OFFICE OF
WILLIAM E. HORTON.
CAPTAIN AND QUARTERMASTER U.S.A.
CONSTRUCTING QUARTERMASTER
PHILIPPINES DIVISION
N
PASIG RIVER
BOUNDARY LINE OF RESERVATION
MEDICAL OFFICERS QUARTERS
POST HOSPITAL
INFANTRY BARRACKS
INFANTRY OFFICERS QUARTERS
ARTILLERY BARRACKS
ENGINEER BARRACKS
CLASS OF BUILDINGS

CONSTRUCTION OF FORT WILLIAM M'KINLEY, MANILA, P. I.

(Captain WILLIAM E. HORTON, U. S. Army, Constructing Quartermaster; Mr. HARRY ALLYN, Supervising Architect.)



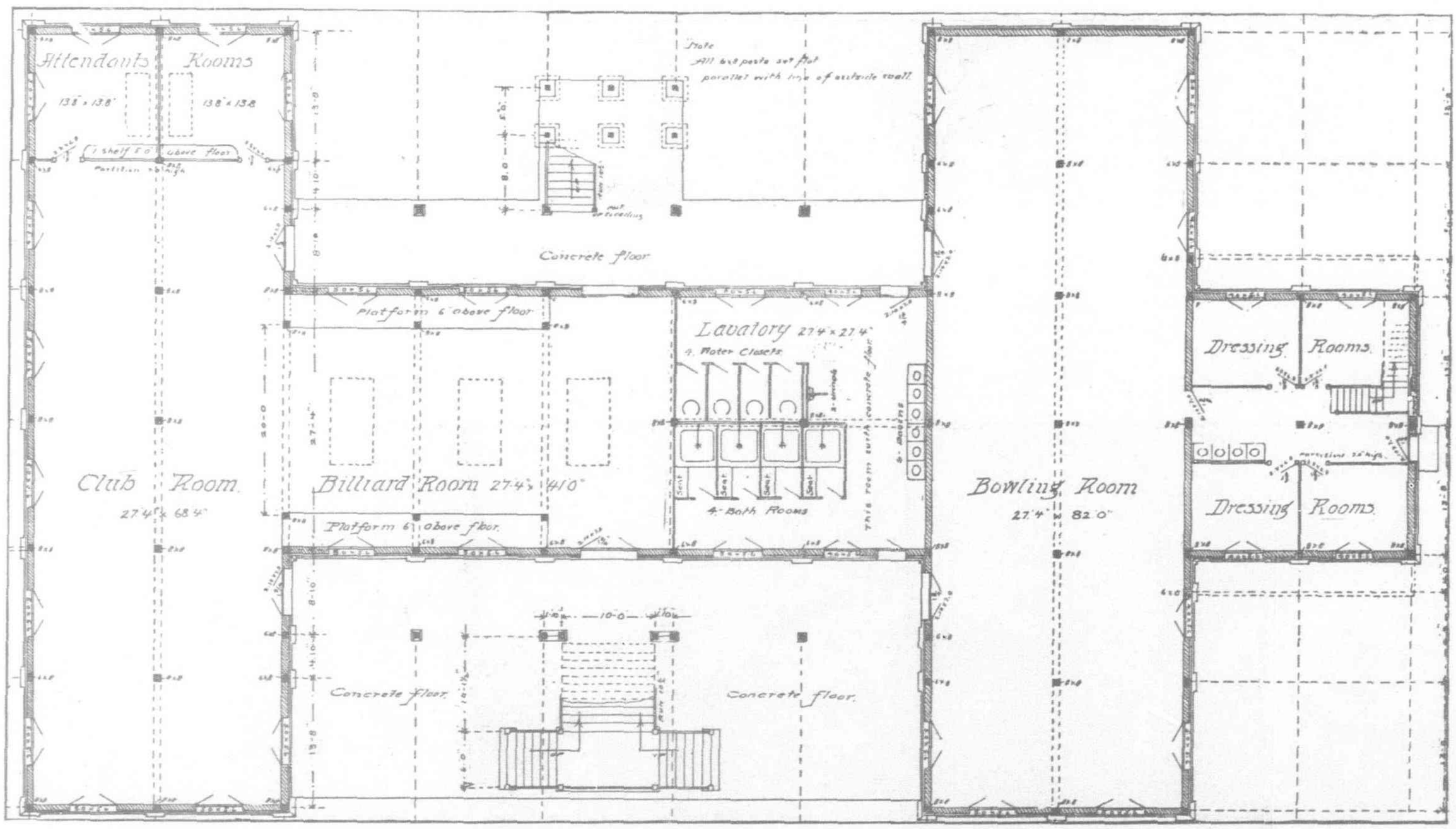
FRONT ELEVATION OF THE MEMORIAL BUILDING, CONSTRUCTED BY THE B. W. CADWALLADER COMPANY, MANILA

After unusual activity, which began when Major-General H. C. Corbin, A. G., assumed command of the Philippines Division, the great military reservation, known as Fort Williaam McKinley, is now being permanently occupied by troops of the United States Army. The cantonment is located about 6 m. SE. of the city of Manila, in the province of Rizal, and has an area of 1800 acres. It has been constructed to accommodate a command of 5,000, and while its acreage is not greater than that of Fort Riley, in the United States, its housing facilities are larger. Next to the famous British rendezvous for volunteers at Aldershot, it is the largest military cantonment in the world. It heads the list of great military reservations which accommodate troops continuously, and in the matter of modern facilities, buildings, etc., it is said to be far and away the greatest of all reservations of this character.

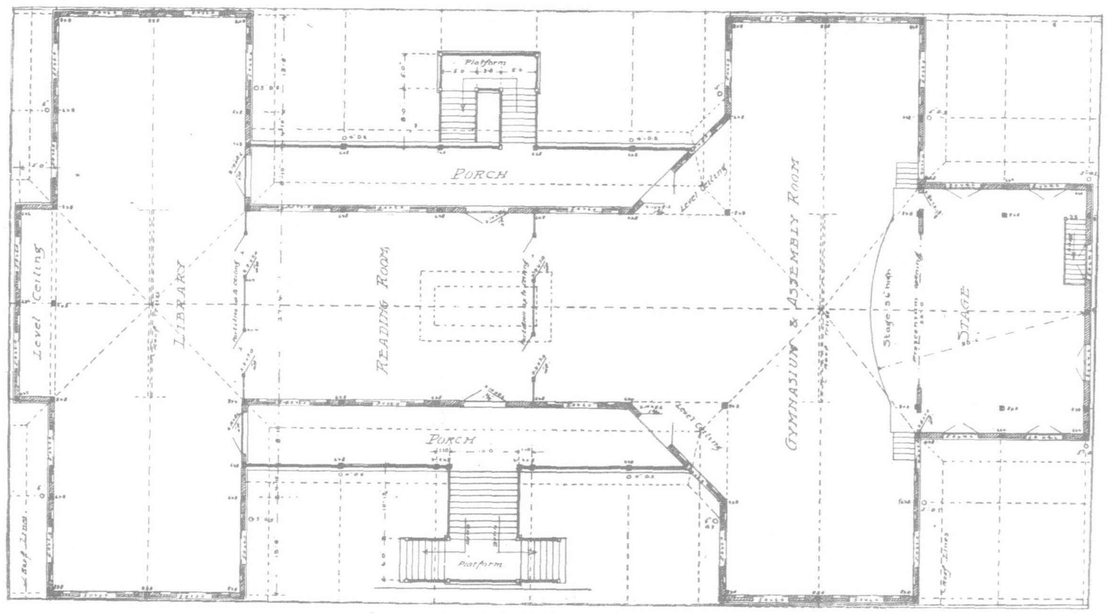
The construction of the buildings was commenced under the administration of Brigadier-General (then Colonel) Humphrey, Quartermaster-General, U. S Army, while he was Chief Quartermaster of the Philippines Division, and when he relinquished his post here Colonel John L. Clem, the present Chief Quartermaster, assumed highest supervisory control. Colonel Clem's interest in the progress of the work has been noteworthy, and with the valuable cooperation of Major-General Corbin he is permitted to see the reservation develop into a permanent post before the close of his administration, a bit of military history which is to be envied.

The land which Fort William McKinley occupies was formerly part of La Hacienda Maricaban, and was purchased by the United States Government in the early part of 1902, at a cost of $64,675 gold. It is situated on the right bank of the Pasig River overlooking the Laguna de Bay, and affords a most entrancing view of these two waters, the surrounding country, and in the distance the mountains of the Provinces of Rizal and Batangas. The land is high and dry, the system of sanitation complete and adequate; altogether, it is considered one of the healthiest spots in the whole archipelago.

BUILDINGS ON THE CANTONMENT.—The buildings on the reservation are designed after no particular style of architecture, but are planned for the comfort and physical well-being of the troops, and to meet the climatic and other con-



BASEMENT PLAN OF THE MEMORIAL BUILDING

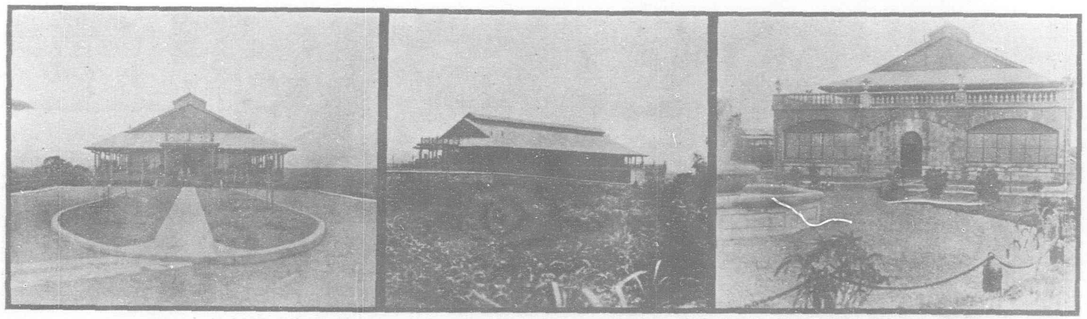


MAIN FLOOR PLAN OF THE MEMORIAL BUILDING

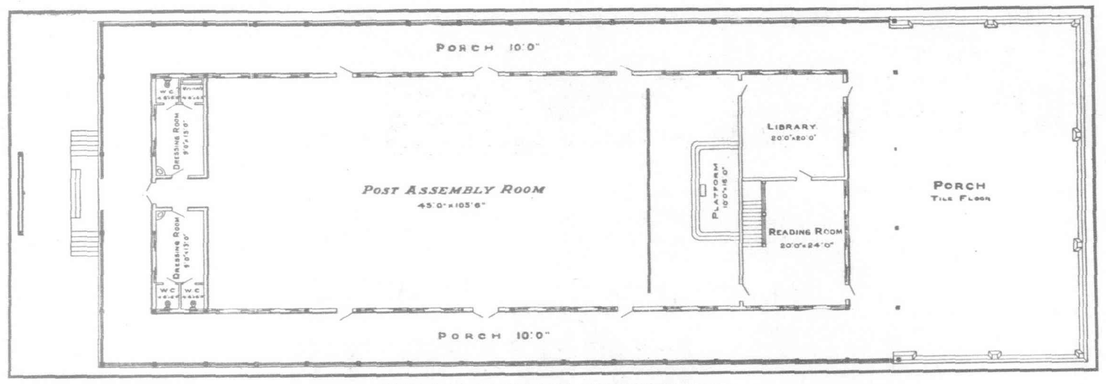
ditions prevailing in these tropical Islands. The total number of buildings is 198, and their kind, number, and capacity are as follows:

Kind of Building.	No. Con'ted.	Capacity.
Barracks, civilian employees	1	40 men
Barracks, band	3	40 men
Barracks, field artillery	2	120 men
Barracks, infantry or cavalry	32	80 men
Commanding officer's quarters	3	1 colonel
Field officer's quarters	11	1 field officer
Captain's quarters	35	1 captain
Lieutenant's quarters	33	1 lieutenant
Bachelor officers' quarters	6	8 bachelor officers
Non-commissioned staff quarters	7	2 non-commissioned officers
Non-commissioned staff quarters	1	5 non-commissioned officers
Temporary nipa stables	1	100 animals
Temporary bunk houses	2	civilian employees
Temporary mess-house and kitchen	1	
Administration buildings	3	1 regimental headquarters
Guard houses	4	
Bakeries	1	
Wheelwright and carpenter shop	1	
Blacksmith and plumbing shop	1	
Quartermaster and subsistence storehouse	1	
Hospital administration building	1	
Oil house	1	
Hospital pavilion wards	4	40 beds
Cavalry stables	8	70 animals
Field artillery stables	2	120 animals
Building for ice plant	1	
Building for pumping plant	1	
Gun sheds	2	6 guns and caissons
Post exchange and postoffice	1	
Brigade headquarters	1	1 brigade headquarters
Wagon sheds	6	25 wagons
Storehouses	8	
Double storehouses	2	
Brigadier-general's quarters	1	1 Brig. General
Stables, Quartermaster	2	100 animals
Memorial building	1	
Corral-master's office	1	
Pile and timber wharves	2	
Hospital operating ward	1	
Morgue	1	
Post Assembly building	1	
Powder magazine	1	

PANORAMIC VIEW OF FORT WILLIAM M'KINLEY, PHOTOGRAPHED FROM TOP OF THE WATER TOWER

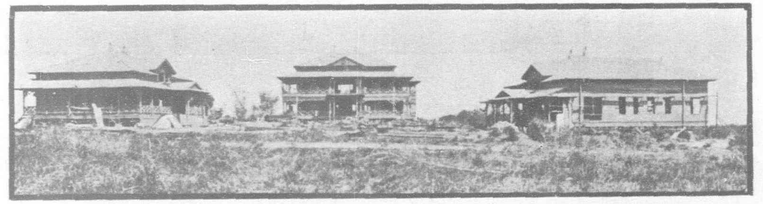


POST ASSEMBLY BUILDING, DESIGNED BY MR. HARRY ALLYN AND CONSTRUCTED BY MR. O. F. CAMPBELL, MANILA
Front View. Side View. Rear View.



FLOOR PLAN OF THE POST ASSEMBLY BUILDING

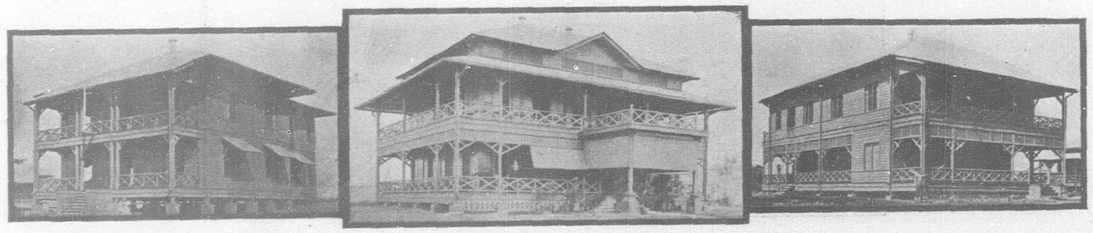
Rapid Progress of Construction.—When Captain William E. Horton, Q. M. *aide-de-camp* to General Corbin, was detailed as constructing quartermaster, December 19th, 1904, only twenty-eight buildings had been completed. On September 17th, 1905, one contract was completed—that of S. C. Choy—and this made a total of 170 buildings constructed from December 19th, 1904, to September 19th, 1905. During the months of January, February, and March, 1905, the number of workmen employed on the construction was respectively 4,000, 5,000 and 6,000. And from 1902 to June 30th, 1905, the sum of $988,817.45 gold was spent at Manila, P. I., for roads, walks, bridges, culverts, transportation, wharves, freight from the United States, lighterage and stevedoring at Manila, temporary buildings, permanent buildings, artesian wells, office supplies and payrolls, clearing and grading sewer system, pumping-plant, tank, and trestle, water system, refrigerating plant shooting ranges, flag-staff and purchase of land.



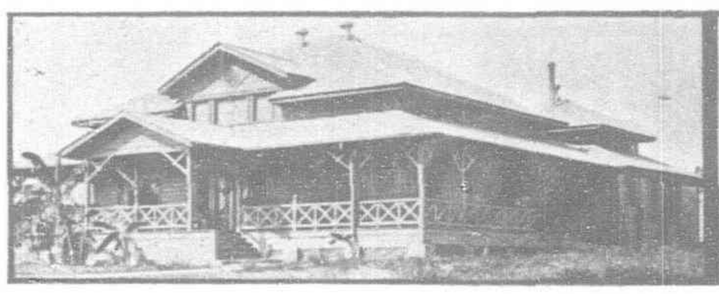
COMMANDING GENERAL'S QUARTERS WITH AIDES' QUARTERS ON EITHER SIDE

Some Noteworthy Buildings.—Among the largest and most beautiful of the numerous buildings on the reservation are the Memorial building, Post Assembly building, Commanding General's quarters, brigade headquarters, post exchange, and postoffice, and the hospital and its pavillion and operating wards.

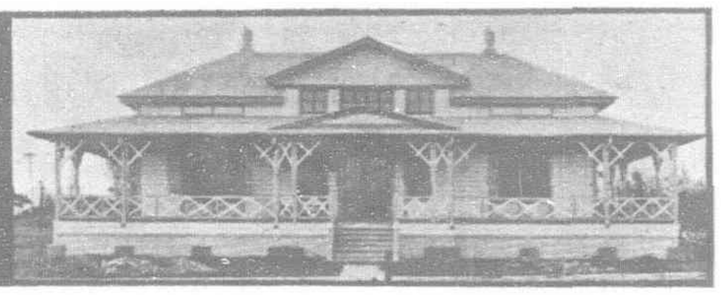
The Memorial building was constructed from funds donated by the Daughters of the American Revolution, at a cost of $10,000 gold, and is for the use of the enlisted men of the command as an amusement hall. It contains a billiard room, gymnasium, bowling alleys, and library, together with a large, well-equipped amusement hall. A study of the plans of this building, which are presented in connection with this article, will show that the enlisted man of the American army is never forgotten nor neglected, no matter if he be 8,000 miles from the homeland, by the good people under whose flag he serves. The Memorial building was constructed by The B. W. Cadwallader Company, of Manila, contractors, and in every detail with respect to arrangement, material, and accessories, it is a magnificent structure. The B. W



ADMINISTRATION BUILDING QUARTERS FOR A COLONEL BATCHELOR OFFICERS' QUARTERS



QUARTERS FOR A CAPTAIN

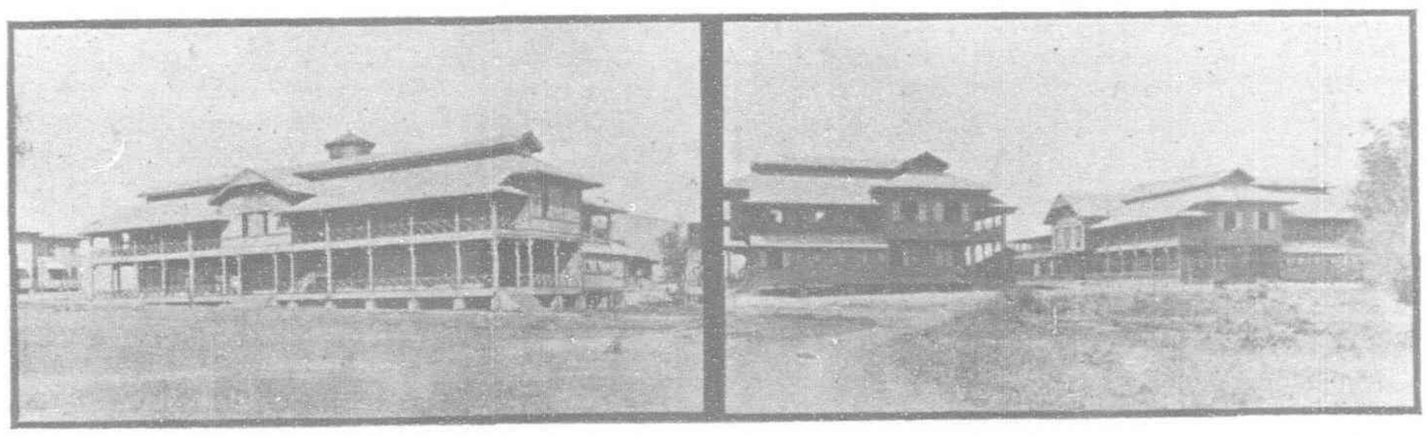


QUARTERS FOR A LIEUTENANT

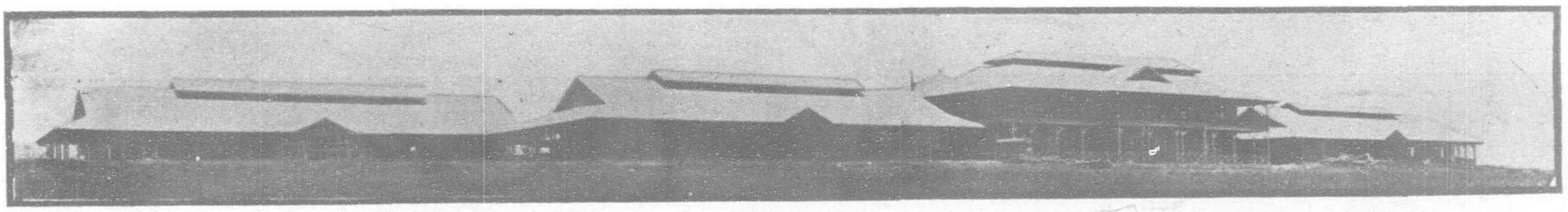
Cadwallader Company also built the commanding general's quarters, three captains' quarters, and the artillery and cavalry stables. All of these structures show the master hand in construction and are considered a great credit to the company whose work is always of the highest order.

The Post Assembly building—by far the prettiest structure on the reservation—was designed by Mr. Harry Allyn, the supervising architect and superintendent of construction, and was built by Mr. O. F. Campbell, of Manila, general contractor. This building is located on a promontory overlooking the Pasig River and the Laguna de Bay, and affords a most beautiful view of the enchanting surrounding country. The dimensions of the building over all are 65 ft. by 192 ft. The main assemb lyhall is 45 ft. by 105 ft. On this floor are two dressing rooms in front and two large rooms in the rear, the latter intended for reading and library purposes. In the rear is a large tile porch 44 ft. by 64 ft., and under this end of the building are six rooms intended for club purposes. Extending beyond the rear of the building is a small park containing a fountain. The entire structure is surrounded by a porch 12 ft. wide. The main assembly hall is to be devoted to post gatherings such as lectures, church services, receptions officers' school, etc. The reception to the Secretary of War, Miss Alice Roosevelt, and the congressional party that accompanied Mr. Taft to the Islands, when the latter inspected the post, August 9th, was held in this room. Besides this structure, which, from the standpoint of architectural beauty and thorough construction, is a gem, Mr. Campbell has constructed four hospital pavilions, one brigade headquarters, and eight of the large barracks buildings, all of which show the same thorough workmanship and solidity which characterizes the assembly building.

ROADS, SIDEWALKS, AND CURBING.—Ten miles of macadam road have been constructed at the post, and cement sidewalks and curbing have been put in front of all quarters. The stone for the construction of roads was obtained for the most part from Malahi Island, but during the month of June, 1905, the rock gave out and it became necessary to obtain this material by purchase in the open market. In June 25,000 cub. yds. of broken stone were contracted for with the following contractors: N. T. Hashim & Co., 15,000 cub. yds., at ₱2.39 per cub. yd.; Faustino Lichauco, 5,000 cub. yds., at ₱2.50 per cub. yd.; Ramos Pazos, 5,000 cub. yds., at ₱1.94 per cub. yd. All of the rock is a No. 1 quality of Binangonan grade. The roads, sidewalks, etc., were built by The B. W Cadwallader Company.



TYPES OF BARRACKS FOR ENLISTED MEN



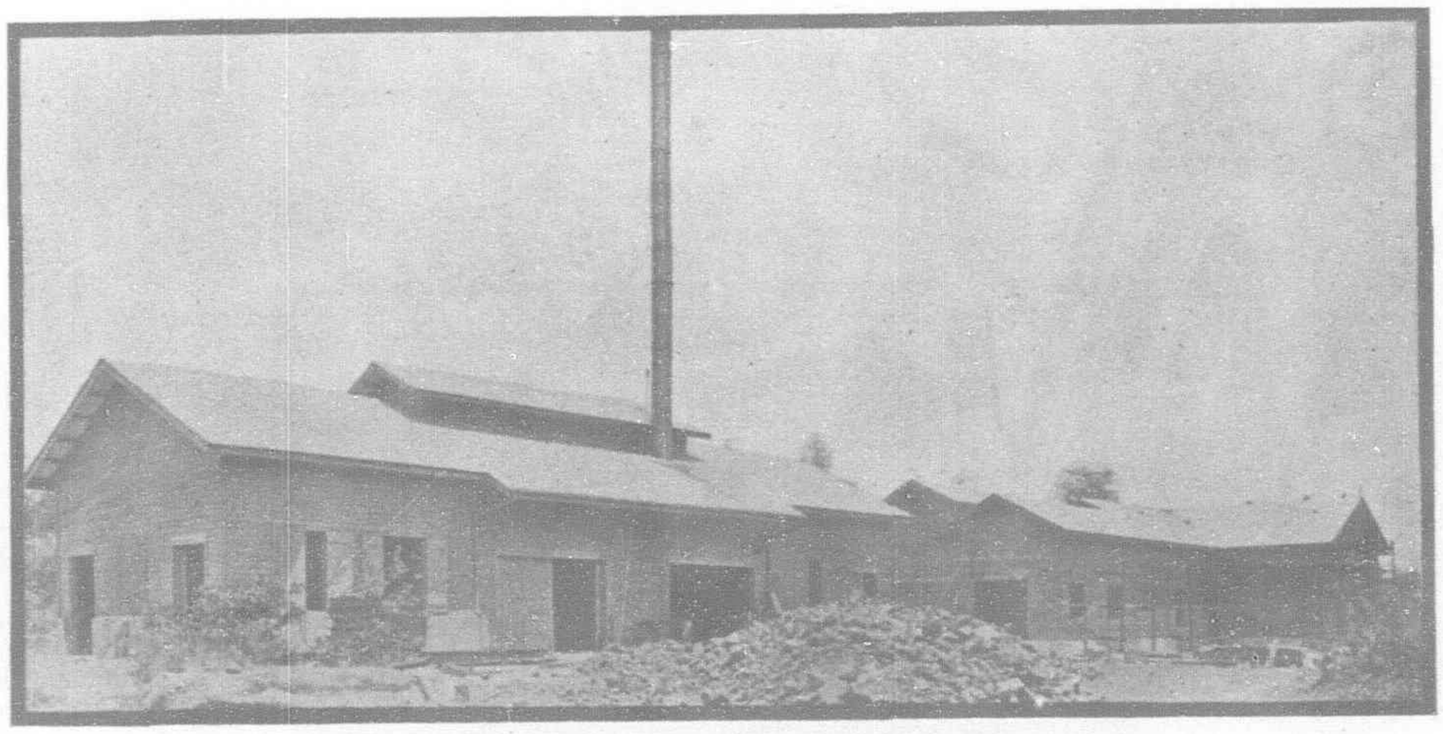
POST HOSPITAL BUILT ON THE PAVILION PLAN

WATERWORKS.—Work in the water system was begun in December, 1904, and finished in July, 1905. Water is obtained from two artesian wells on the reservation, which were drilled by John G. Sutton, of San Francisco, Cal., and is pumped into a 100,000 gal. tank, which was erected by Messrs. Dyer Bros., of San Francisco, Cal. The distributing system of the water supply consists of 2,800 ft. of 10-in. pipe, 35,000 ft. of 6-in. pipe, and 7,200 ft. of 4-in. pipe. There are fifty-eight 6-in. fire hydrants, ten 4-in. hydrants, and one water crane, the latter being placed so that at least two streams can be thrown on every valuable building on the cantonment. This water system was constructed by day labor under the direction of Lieutenant J. H. Poole, C. E., U. S. Army

SEWER SYSTEM.—Contract for the laying of a complete sewer system was entered into with Messrs. Grant & Co., Ltd., of Manila, May 27th, 1904, and the work finished by this firm April 19th, 1905, at a total cost of $40,000 gold. In the construction of this system 53,163.51 ft. of trenches were opened, 52,542.17 ft. of pipe laid, and 201 manholes constructed. Excavation, including back-fill, amounted to 18,156.80 cub. yds. This work was superintended by Lieutenant Thomas H. Jackson, C. E., U. S. Army.

REFRIGERATING PLANT.—A 15-ton Frick refrigerating plant was installed during the first part of the current year, and is giving perfect satisfaction.

MATERIALS USED IN CONSTRUCTION.—Oregon fir, with the exception of posts, which are of native hardwood, was used in all the work at Fort McKinley. In this connection, Captain Horton, the constructing quartermaster, has recommended that all woodwork on the inside of all buildings, constructed by the military in this country, be oiled. This as a preservative measure, as well as for appearances. He also recommends that the posts of all buildings be



POST WATERWORKS AND REFRIGERATING PLANT

painted with carbolineum in order to resist the attacks of white ants, and that the posts of the buildings be inspected regularly to see if any damage has been done to them.

Six thousand bbls. of "Green Island" cement, manufactured in Hongkong by the Green Island Cement Company, Ltd., Messrs. Shewan, Tomes & Co., general managers, have been used on the reservation from January 1st to June 30th, 1905, and as to quality and test it has met every requirement. Messrs. Wm. H. Anderson & Co., Manila agents for this cement in the Philippines, secured the contract for the supply of this material.

FLAG POLE.—A 100-ft. steel flag pole has been erected in front of post headquarters.

CAPTAIN HORTON'S ASSISTANTS.—During Captain Horton's detail at Fort McKinley as constructing quartermaster, he has been assisted by Captain J. R. R. Hannay, 22d U. S. Infantry, who is in charge of all work being done by day labor; 1st Lieutenant E. W. Terry, 7th Infantry, with Captain Hannay; 1st Lieutenant J. H. Poole, C. E., in charge of water supply, plumbing, and grading; 1st Lieutenant Thomas H. Jackson, C. E., in charge of sewers and construction of roads, bridges, walks, and culverts; Mr. Harry Allyn, who has ably supervised the architectural end of the construction, with Mr. F. D. Baker as chief clerk in the constructing quartermaster's office.

There is little to say of these gentlemen individually, and the work they have accomplished, that can not be said of them all. Under the able supervision of Captain Horton his efficient staff has labored relentlessly and faithfully in the interest of the United States Government, and while as a result of their skill Fort McKinley has developed into a most modern and magnificent military post—a fitting tribute to the memory of the martyred President for whom it has been named—the whole undertaking is bound to redound to the credit of all of them.

MAGNETIC SURVEY OF THE PACIFIC

A magnetic survey of the North Pacific Ocean has been inaugurated by the Department of International Research in Terrestrial Magnetism of the Carnegie Institution at Washington, U. S. A. A wooden ship, the brig *Galilee*, which was fully adapted for the purposes of the expedition at San Francisco, has sailed from that port on her first season's work.

The object of the expedition is to secure precise data of the distribution of the magnetic forces over the Pacific Ocean. Except for data from occasional expeditions and such as were required in wooden vessels a long time ago, the present magnetic charts used by the navigator over this region depend largely upon the observations on islands and along the coasts. Such land observations, however, are rarely representative of the true values, because of prevalent local disturbances. It is, therefore, impossible to make any statement as to the correctness of the present charts.

An initial allotment of $20,000 has been made to cover the expenses of the current year. It is estimated that the work can be accomplished in 3 years. The first cruise will be from San Francisco to San Diago, Honolulu, and back to San Francisco. It is then proposed to make a circuit from the W. of America to the Galapagos Islands, thence across the Pacific to the Philippine Islands and Japan, returning by way of the islands, closing the circuit at San Francisco, and thence continuing through a series of areas bounded by parallels of latitude and meridians of longitude each 5 deg. apart, lying next on the midocean side of the circuit last made, and proceeding gradually and by successive circuits into the central region of the North Pacific.

The total length of the course marked out is about 70,000 knots. The cost per month of the field work, inclusive of all expenses and services, will approximate $1,500. Counting 8 mos. of continuous service *per annum*, the total annual outlay is estimated at about $12,000.

The director of the work is Dr. L. A Bauer, who is likewise in charge of the magnetic work of the United States Coast and Geodetic Survey.

The *Galilee* carries a crew of nine men and a sailing master. The scientific leader and commander of the vessel is J. F. Pratt of the United States Coast and Geodetic Survey, who has had 30 yrs.' experience in astronomical, geodetic, hydrographic and magnetic work. The members of the scientific corps are Dr. J. Hobart Egbert, magnetic observer, surgeon and naturalist; J. P. Ault, magnetic observer, and V. W. Whitney, magnetic observer, and watch officer.

WOODWORKING MACHINERY FOR JAPAN

Mr. Stafford Ransome, M. I. C. E., author of "Japan in Transition," points out that woodworking machinery is bound to be in great demand in Japan when normal economic conditions are restored after the war.

Engineering firms in all branches of trade will profit by the new condition of things, says Mr. Ransome, but the sawmill engineer most of all. And this is the reason: While for years past makers of engines and boilers, and machine tools, and dockyard and railway plant, and a hundred other things have plied a large trade in Japan, the question of woodworking machinery is only in its infancy in Japan. Some sawmill engineers may well question that statement, for they can refer back to their order books, and say with perfect truth that for a long time past they have been carrying on a large and successful business with that country. And so they have, but that trade is as nothing as compared with what must come, for the one great woodworking industry of the country which, of itself, is ten times larger than all the rest combined, has not yet been tapped.

Heretofore most of the woodworking machinery supplied to Japan has gone to the government. There have been railway car and wagon machines, machines for use in dockyards and arsenals. Besides the government orders there have been orders of a kindred nature from private users and companies, and occasionally there have been box-making, and other independent factories. In an experimental way, too, small log sawmills have been started. But when all is said and done these machines supplied up to the present have not been used for the purpose of house construction. When it is considered that there are 40,000,000 Japanese, and that all of them are housed in wooden structures, that these structures are all made up of carefully prepared and accurately-joined timbers, and, above all, that the dimensions and styles of the timber employed are all laid down on accurate and uniform lines, the scope of the sawmill engineer, when once he has tapped this market, may be realized.

When Japan erected a railway or a dockyard plant she adopted woodworking machinery because that was a part of that plant. She was running the whole thing from beginning to end on Western lines, and she carried out the principle, as she always does, to its logical end. Then again, when she began to compete with other countries in making tea boxes for India, she soon came to the sound conclusion that she had better adopt the same means of making these boxes, and so she put down box-making machinery. But the case of timber construction for domestic purposes was entirely different. She had her own methods of making these things, and there was nothing in her domestic architecture that had been borrowed from the foreigner. She used, and she still uses, and there is no reason why she should not always use her own native timber for this purpose, for there is an abundance of it. And it is because of the abundance of skilled labor at a low price in an industry that has nothing of the foreign element in it, and that has been a characteristic native industry from time immemorial, that the maker of woodworking machinery has up to the present time been unable to push his way into it.

These, therefore, are the points that Mr. Ransome would impress upon manufacturers of woodworking machinery. First and foremost the time has come for studying the nature of the construction of the Japanese house. The machinery for making it can be standardized in a manner impossible with any other class of building. Throughout the timbers can be sawn, and adzed, or mortised, and bored, and planed by machines working as simply, rapidly, and automatically as those which prepare railway ties of special types of boxes. For the "repetition" work is enormous, and the demand will be almost the biggest thing in woodworking machinery that has been known in the way of a "new line." The scarcity of labor brought about by the war and the outflow of the artisan class will shortly make the introduction of machine-made houses a necessity, and it is the firm that will make the best set of specially designed machines for the purpose that will secure the trade. The ordinary saw bench, and planer, and mortising and tenoning machines will do the work, but something far better than the usual tools can be easily designed for this special work.

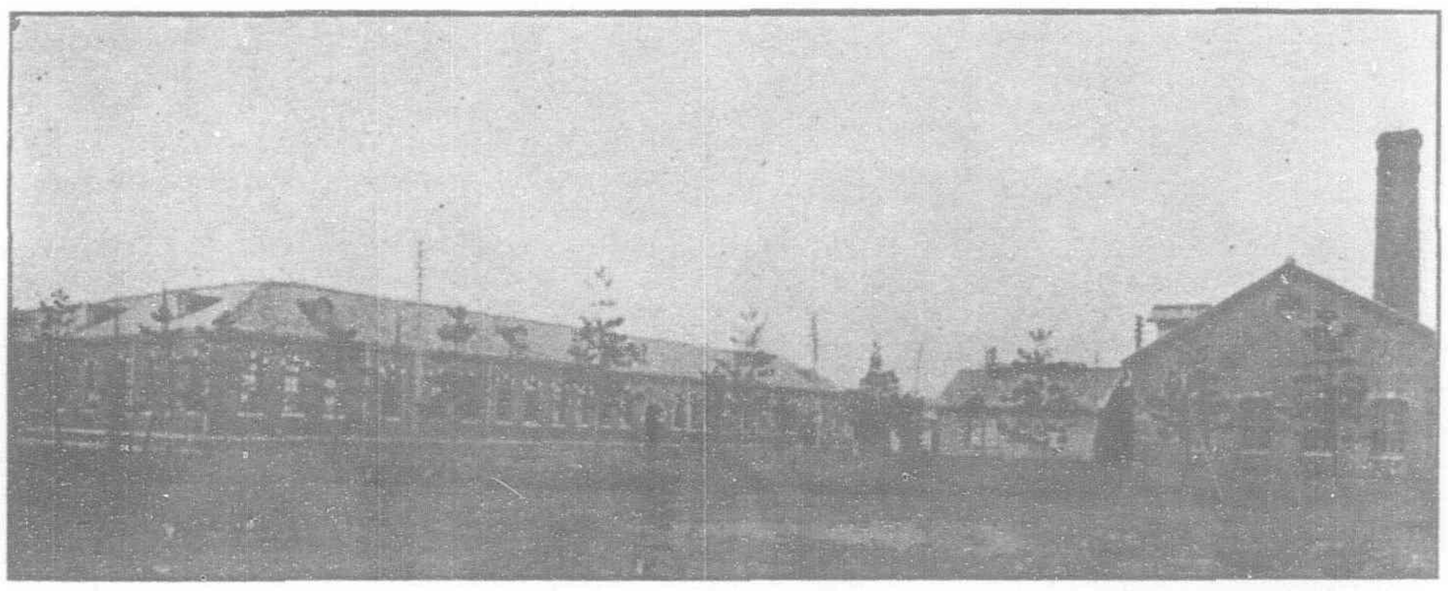
STEAM TURBINES FOR JAPAN

With the industrial awakening of Japan, according to electrical and engineering papers published in America, has come a need for electrical power not only for manufacturing purposes, but for transorptation and lighting. Japanese engineers are wide-awake, and their enterprise is nowhere more clearly indicated than in their adoption of steam-turbine electric-generating units. The first shipment of steam turbines arrived in Japan *via* the Steamship *Korea* recently from San Francisco. They were 500 kw. capacity of the Curtis type, and were for operating the Shigai Railway in Tokyo. Four weeks from their arrival they were in full operation. As significant of the success of these first units there have been ordered by the Japanese from the General Electric Company of New York, thirty-seven Curtis steam turbines with electric generators with a total normal capacity of more than 35,000 h. p. Of these, eleven units are now installed and in satisfactory operation.

The Japanese are not slow in adopting the electrical systems which will improve their manufacturing and transportation facilities and give the people better lighting service. They are using electricity for operating the street railways of their cities and for indoor and street lighting. In the use of electric power for machine shops, they are following only the best American practice, which, as a rule, requires electric motors mounted on each tool. The coal mines of Japan will eventually be operated electrically. Some of the turbines mentioned above are intended for the Miike coal mines on the Island of Kyushu. These are owned by Mitsui & Co., and will use two 100 kw. Curtis steam turbines.

The Osaka Electric Light Company, which furnishes electricity to the City of Osaka, which has a population of over 800,000, is equipped entirely with American electrical apparatus, including six steam turbines of the same make. One of the largest electrical interests in Japan which has ordered some of the machinery referred to above, is the Tokyo Street Railway Company, which furnishes transportation facilities for the City of Tokyo, which has a population of 1,440,00. Its franchise runs till 1952. Apparently, the municipal ownership idea has obtained some weight, for this franchise provides that after the year 1932 the municipality may purchase the property of the company by paying a proper price for it. Although some English and German material is being used by this company, practically all the electrical equipment is American made. This includes five 2,000 h. p. Curtis turbo-generator units, with power-house equipment and railway motors furnished by the General Electric Company, Wheeler condensers and Brill trucks. Besides a small amount of German and English machinery, such as boilers and trucks, there are a few small dynamos which were made in Japan.

ELECTRIC ENGINEERING COURSE AT IMPERIAL UNIVERSITY OF KYOTO, JAPAN



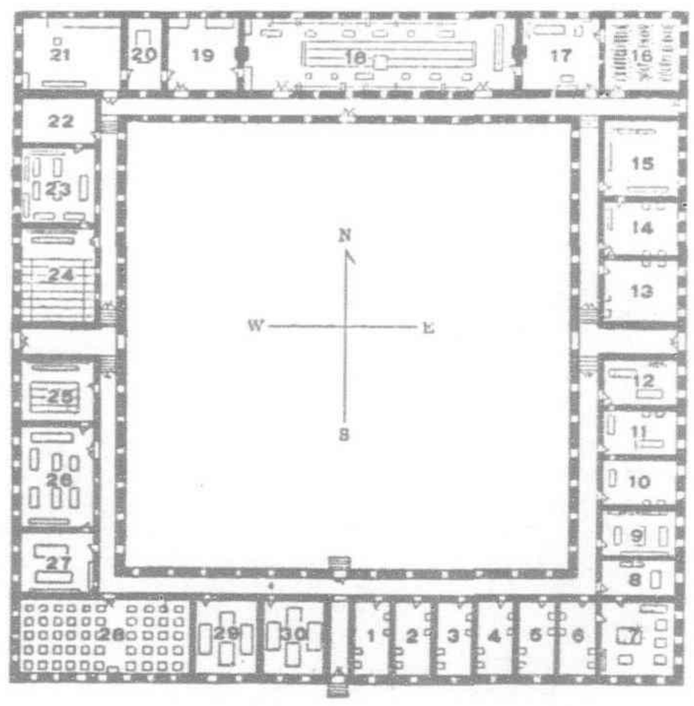
ELECTRICAL ENGINEERING BUILDING, BATTERY ROOMS AND POWERHOUSE

The second great educational institution of Japan, the Imperial University of Kyoto, is of comparatively recent construction, having been founded after the close of the war with China by an allotment of funds from the indemnity received from China. From the beginning electrical engineering took a prominent place in the curriculum under the able administration of Professor Masashi Namba, head of that department, a pupil of Mascart, in whose laboratory in the College de France he was for a time an assistant. When the course at Kyoto was first started Professor Namba gathered a large collection of electrical engineering material and fittings, donated principally by American manufacturers, with the object of illustrating lectures on practical subjects by specimens of the material, fittings, etc., referred to. He also proceeded to the building up of a general laboratory, which now in up-to-date equipment for the training of students in electrical engineering ranks favorably with the best of its kind in the world.

The main building occupied by the Department of Electrical Engineering was designed with special reference to the use to which it would be put. Among the prime requisites for an engineering laboratory may be noted adequate light and freedom from disturbances of delicate instruments. The building is a substantial brick structure one story in height. It has a frontage of 158.45 ft. and a depth of 198 ft., with an inner court 135.45 by 135 ft. The electrical laboratories are so arranged in the building that the heavy currents in the engineering laboratory are so far separated from the instruments in the more purely physical laboratory that practically no detrimental effect is produced upon the latter by the magnetism of the former.

A plain view of the building is given in the accompanying floor plan, in which the various rooms are referred to in numerals. In the S. side there are three standardizing rooms, 29 and 30, and a well-lighted drawing room, 28. The remaining rooms in this side of the building, 1-6, are used for delicate instruments, while the corner room, 7, is the professor's office. In the N. side, the W. corner rooms, 20 and 21, are workshops, the E. corner contains a storage battery room, 16, and a high-tension testing room, 17, while in the middle part is located the laboratory for heavy-current engineering, 18, and an electrochemical laboratory, 19. In the E. side there are an office, 8, a library, 9, a photometer room, 15, and five research laboratories, 10-14. The W. side contains two storerooms, 22 and 23, two lecture rooms, 24 and 25, a museum, 26, and a special laboratory, 27. The building is equipped throughout with electric lamps, electric heaters and telephones.

The room used as a laboratory for the testing of dynamos and meters, 18, is 82.5 ft. long, 24 ft. wide and 17 ft. high. Special provision has been made for facilitating the arranging of electric apparatus as desired anywhere in the room. A 3-ton, hand-operated traveling crane serves for moving the heavy machinery. Four lines of rails of U-shaped section, which are spaced uniformly at 2 ft. apart in the concrete floor, are used for holding the machines in place Each machine is mounted on a wooden frame of a special type, so that it may readily



PLAN OF ELECTRICAL ENGINEERING BUILDING

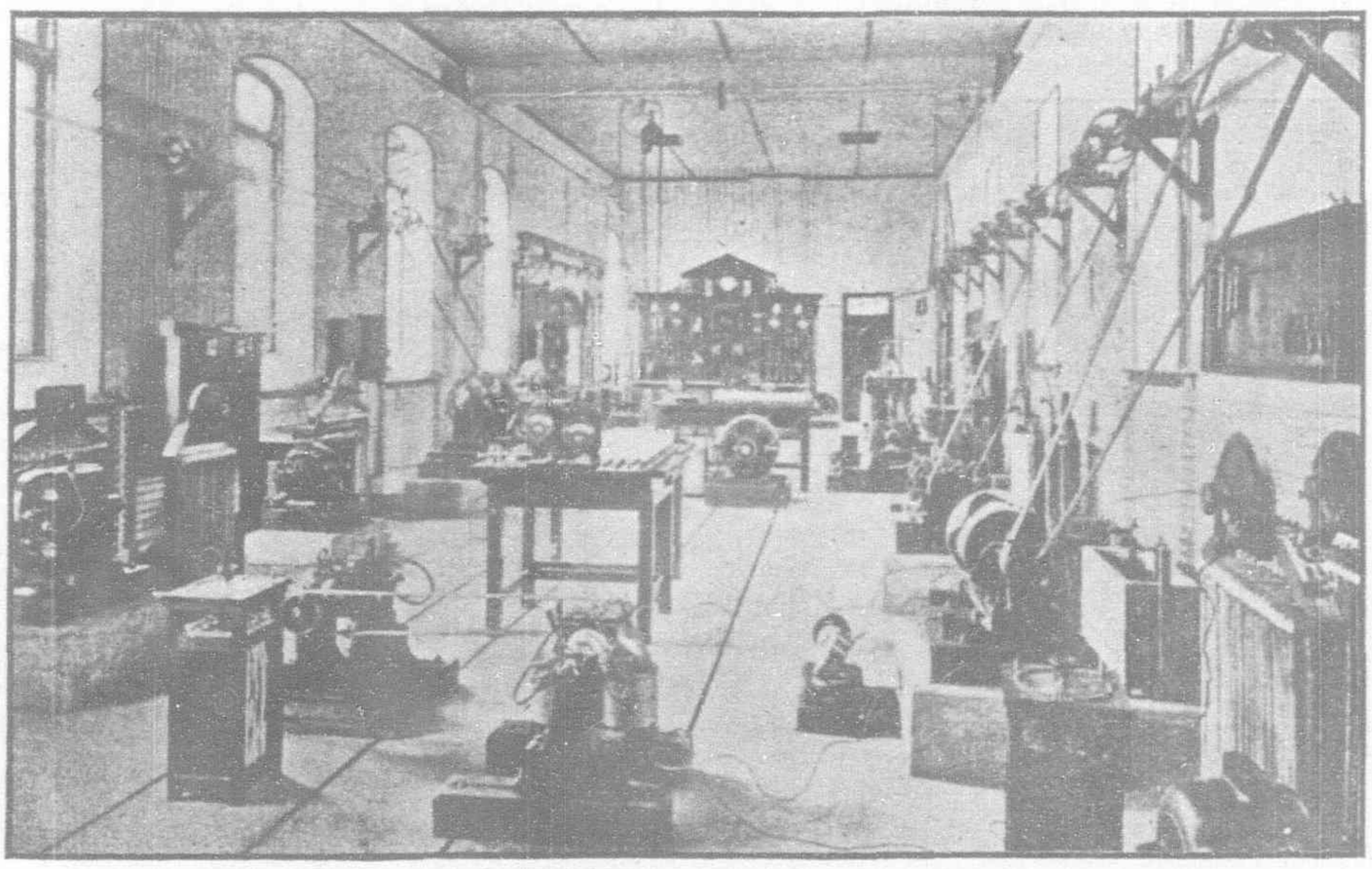
be attached to the rails. On either side of the room is a row of machines placed on brickwork foundations. The machines are driven by means of long countershafts in the side walls. The countershaft on the S. wall is driven through a belt by a 5 h. p., 100-volt, Edison bipolar motor, while the one on the N. wall is driven by a 10 h. p., 440-volt, A. E. G. direct-current motor, or by a 9 kw Schuckert rotary converter used as a direct-current motor. The machines on the brick foundations can be driven not only by the counter shafts, but by the motors temporarily fixed on the rails. The portable machines can be located at any desired place and operated as generators or motors, according to the needs of the students.

In addition to the two motors specifically referred to above, the dynamo and motor laboratory contains a 1-lamp Brush arc machine, a 2 h. p. Stanley, 2-phase, 60-cycle motor, a 1 h. p. Westinghouse 3-phase induction motor, a 9 kw Schuckert 1-2-3-phase rotary converter, a 2 h. p. Schuckert direct-current, series-wound motor, a 1 h. p. Shibaura (Japan) 3-phase induction motor, a 2 h. p. Wagner single-phase motor, a 1 h. p. Shibaura single-phase rotary converter, a Shuckert motor-generator set, the two machines being connected by a flexible leather coupling, the field cores of each machine being provided with both series and shunts coils. There are also a 3 h. p. Osaka (Japan) 3-phase induction motor, two 2 kw, 110-volt, direct-current generators, a 1 h. p. Westinghouse, direct-current, compound-wound motor.

Direct current is obtained from the switchboard at 20,110,220,440 or 500 volts. Switchboards are equipped for applying alternating currents as obtained from the Schuckert and Shibaura rotary converters operated inverted, or from a 50 kw, 1000-volt Westinghouse 3-phase generator, which is installed in the central power-house.

The central power-house serves not only to supply electricity to all parts of the university, but to give to the third-year students practice as engineers, and to afford opportunities for original investigation in engineering subjects. In addition to the Westinghouse alternator just referred to, the machines especially equipped for laboratory purposes are as follows: A 12.5 kw, 125-volt, General Electric, direct-current generator and two 5.4 kw, 500-volt, 50-cycle, Schuckert, 3-phase alternators. One of these latter alternators is direct-connected to a 440-volt, Westinghouse, direct-current motor, while the other is belted to a 10 h. p. De Laval steam turbine.

The high-tension test room is equipped with the following apparatus: Four 7.5 kw, 100 to 10,000-volt Stanley transformers; a 5 kw Westinghouse rotary converter, which transforms from 60-80 volts alternating current to 100-140-volts direct current; a transformer having a ratio of 1,000 to 60-80 volts for the

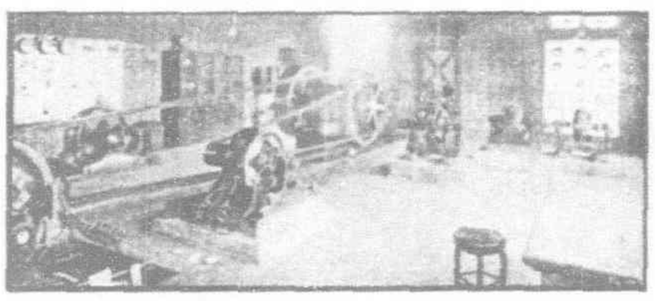


DYNAMO LABORATORY

rotary converter, and a 1 h. p., 200-volt Westinghouse induction motor.

In the N. side of the electrical engineering building are located a well-equipped electrochemical laboratory and a photometer room. The latter room is divided into many compartments by black cloths hung from the ceiling, the floor and the inside of the walls being also blackened. There are installed photometers of the Weber, Rousseau and the Lummer-Brodhun types, with many kinds of photometric standards and numerous styles of X-ray apparatus. Among the various new lamps in use may be mentioned the Nernst lamp, the Cooper Hewitt mercury vapor lamp, an arc lamp with impregnated carbons and a singing arc.

In the center of the yard, which is surrounded by the electrical engineering building, is erected a 140-ft. pole made of iron pipe. This pole is used principally for experiments in wireless telegraphy There is provided a special laboratory for containing the wireless telegraphy apparatus, most of which is of the Lodge and Popoff-Ducretet systems.

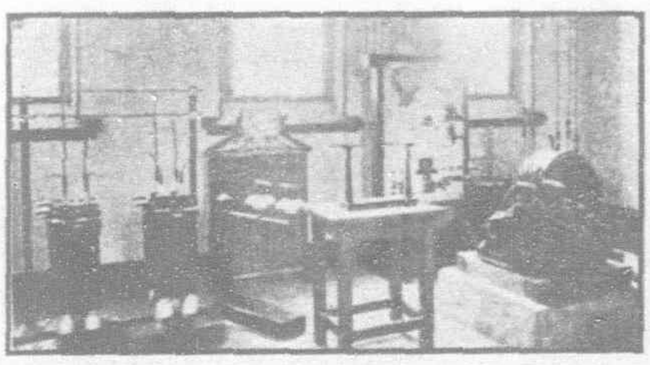


INTERIOR OF POWERHOUSE.

In two rooms set apart from the standardizing laboratory extra care was taken to eliminate the effects of external disturbances upon the delicate apparatus there installed. To prevent vibrations each instrument is placed upon a granite plate laid on a brickwork base. The important measuring instruments in the direct-current room are a potentiometer, standard resistances, Clark standard cells, adjustable resistances, storage batteries, etc., while in the alternating-current room are to be found two Kelvin standard balances, Weston direct and alternating-current wattmeters, voltmeters and ammeters, standards of capacity and self-induction, a Rowland electrodynamometer, a Weber electrodynamometer, etc.

There are two lecture rooms, seating 50 and 70 students, respectively. The latter is equipped with two independent supply circuits from the main switchboard of the laboratory, so that both direct and alternating current can be used for purposes of demonstration when desired.

In the library of the department is a large collection of books on physical, electrochemical and engineering subjects, most of them being written in English, German and French. The principal periodicals are received regularly while all of the new publications of importance are obtained as soon as issued.



HIGH-TENSION TESTING ROOM.

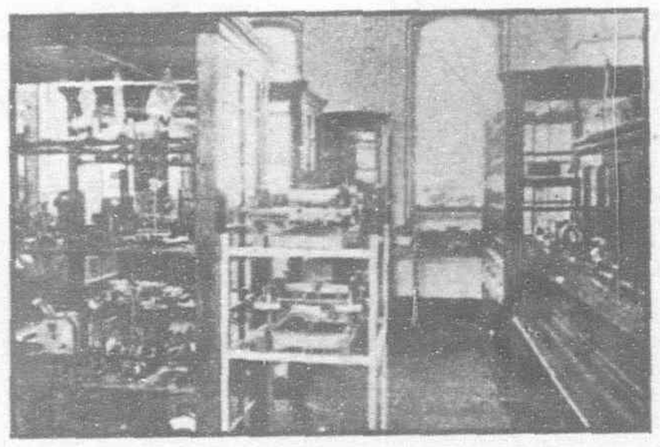
The museum of the electrical engineering department contains a large collection of instruments, apparatus and samples of materials relating to telephony, telegraphy, electric power, electric light, electric traction and electric heating. Among the collection may be found a 240-drop telephone switch-board, a selenium photophone, a Zickler photo-electric signaling device, a Franke contact-maker, an A. E. G. phase adjuster, four models of Brill trucks, an electric furnace, frequency meters, galvanometers, samples of cables, conduits, etc.

The principal distributing circuits consist of a 2x220-volt direct-current, three-wire system used in parallel with a storage battery controlled by the end-cell method. There are two battery equipments, the larger one of which contains 188 Tudor cells, 100 having a capacity of 3 x 42 ampere-hours and 88 used as end cells having a capacity of 3 x 60 ampere-hours. The smaller equipment consists of 60 Tudor cells of 3 x 36 ampere-hours capacity and 60 E. P. S. cells of the same capacity. This latter battery is equipped with an automatic end-cell sichtst by means of which the pressure is kept conwant at 110 volts. The switchboard in the main power house is so designed that the three direct-current generators installed there may be connected in series or parallel or joined with the storage batteries in any manner desired for particular cases.

The boiler room contains a 100-h. p. Heine water-tube boiler and a 50 h. p. Sterling boiler of the same type. The latter boiler is equipped with an under-feed stoker and a blower driven by a 1-h. p. 440-volt, direct-current motor. Two motor-driven feed pumps of 0.5 h. p. and 0.75 h. p. capacity, respectively, are located in one corner of the room, and in the opposite corner there is a feed-water heater.

There are in use around the university more than 1,000 220-volt incandescent lamps, 11 arc lamps and about 20 h. p. capacity in motors for various purposes.

The teaching staff of Prof. Namba consists of two assistant professors, four lecturers and three tutors. The students enrolled in 1904 numbered 59. The first class was graduated in 1900 and the total of graduates to 1904 is 30. The practical character of the instruction is denoted by the graduating theses, some of the subjects of which have been as follows:



ELECTRICAL ENGINEERING MUSEUM

Transformer regulation; design of an electric lighting plant; compensation of alternating-current line drop; alternator armature reaction; choice of magnetic induction in design of small transformers; design of Arima electric railway; a study of the Nernst lamp; analytical study of the induction motor; design of a small power plant; speed control of electric motors; extension of power plant of the Kyoto Electric Traction Company; study of Faure battery plates; the correction factors of wattmeters; surging between parallel-connected alternators; design of a transmission line; most economical transmission for the Miyake railway extension; iron as an alternating-current conductor.

BORNEO'S RAILWAY EXPERIMENT

According to a German gentleman who recently made a trip over the entire length of the Tenom Railway, from Jesselton to Fort Tenom, British North Borneo, a distance of about 120 m., the line is very primitive in construction and rolling stock. It is not yet in a state of completion, but a service of three trains a week is maintained with as near an approach to regularity as one can expect under the circumstances.

It appears that the main hindrance to traffic is the state of the bridge which spans the Papar River at Fort Papar, half way between Jesselton and Beaufort, which is about 80 m. from the coast. The bridge which was originally constructed foundered badly, and became incapable of sustaining the weight of a train. It has been patched up, however, to bear the weight of one truck at a time, while a newer and stronger bridge is being built. The delay thus caused may be imagined when it is stated that a train made up of, say, fifteen cars has to be pushed across the bridge one car at a time by coolies, for the structure cannot bear the additional weight of an engine. The running of trains is so arranged that an outgoing train and an incoming one meet at the bridge and having been pushed across they are coupled to the waiting engine on either end and then proceed on their journey.

Numerous stoppages are also caused by landslides from the sides of the mountains along the base of which the railway runs throughout a great part of its length. When such obstacles are encountered there is nothing for it but that all hands, from the all-important Eurasian engineer down to the passengers, lend their assistance to clear away the obstruction. These slides are generally not very heavy, but occasionally a big clip occurs, entailing several hours' delay. From Jesselton to Beaufort—80 m.—the time usually taken is about 12 h.; but, as before stated, about one-third of the time is taken up in the passage of the broken bridge at Fort Papar, and when the new bridge is completed and the trains can go right ahead, the journey will be correspondingly shortened. From Beaufort to Tenom, the terminus, the distance is some 40 m., which is done in from 4 to 5 h. The average speed thus comes to about 10 m. per h., which compares very favorably with some of the China railroads.

CENTRAL STATION ON FIRING LINE

Recently a passenger train on the Pennsylvania Railroad collided with a freight train at Harrisburg, Pa., U. S. A., causing the explosion of 50,000 lbs. of dynamite, contained in two of the freight cars. The tremendous force of the explosion, which shattered windows 3 m. from the wreck, inflicted little damage to the exterior of the power plant of the Paxtang Electric Company, designed and built by Messrs. J. G. White & Co., engineers and contractors, of New York, London, and Manila, constructors of the Manila electric railroad and lighting system. As a matter of fact, the substantial character of the building enabled it to withstand the shock, according to *The Electrical World and Engineer*, and continue in operation. Mr. Hamblin, general manager of the Paxtang Electric Company, shows a sub-station voltmeter chart on which is indicated the time of the explosion. This shows that no interruption of service was experienced, although 1,000 panes of glass were blown in, covering engines, generators, machinery and floor with finely broken glass. The explosion occurred only about 150 ft. from the power house, and a careful examination failed to locate a crack of any kind either in the stack or in the building, not even a brick of which was displaced.

TRADE CATALOGS

"The Cigar Question," Messrs. Walter E. Olsen & Co , Manila, P. I.

This is a handsomely illustrated catalog, printed in red and black, containing prices and other useful information relative to the leading brands of Manila cigars distributed by Messrs. Walter E. Olsen & Co., successors to Kiosko Habanero, importers, exporters, and jobbers of all kinds of cigars, cigarettes and tobaccos. The office addresses of this enterprising firm are 9 Plaza Moraga and 27 Escolta, Manila, P. I. The catalog is well worth careful perusal. It was printed by Messrs. E. C. McCullough & Co., Inc., Manila, P. I., and is one of the neatest trade publications that has come to our desk for some time.

"St. Raphael Wine," Messrs. Caldbeck, MacGregor & Co.

This enterprising firm, doing business at Singapore, Hongkong, Shanghai and Tientsin, in the Far East, has issued a pamphlet concerning St. Raphael wine, and other valuable information of interest to consumers of alcoholic liquors which should be of great help to retailers of these goods in making selections for their trade.

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

PERSONAL

Mr. T. F. Carlisle, H. B M. consul at Hanoi, has entered upon his official duties. This is the first consulate in the metropolis of Tonkin.

Mr. Willis E. Grey, late engineer-in-chief of the Canton-Hankow Railway Company, has entered a suit at Shanghai against the American China Development Company, claiming damages in the sum of $43,500 gold for breach of contract. This is the company that has just sold its rights to the Chinese Government for $7,000,000.

Mr. David Kinlock Michie, an engineer of the Colombo Iron Works, and Mr. George Herbert Golledge, a planter of Gikiyanakande Estate, Neboda, Ceylon, have been authorized to file at Penang, Straits Settlements, a specification of an invention for "improvements in the method of separating or coagulating india rubber, and its appliances therefor."

Mr. George E. Wade, a well-known sculptor, has been commissioned to mould the first public statue of Queen Alexandra. Its destination is Hongkong. The statue is to be erected out of a fund raised in connection with the celebration of the coronation in Hongkong. It will be life-size, of bronze, and will represent Her Majesty in her coronation robes.

Mr. Lorenz, an electrical expert representing the firm of Messrs. Arnhold, Karberg & Co, recently gave a demonstration at Lanchow, China, of the advantages and the working of the Marconi system of wireless telegraphy. Messages were sent from that place to Tientsin and received there by means of a balloon with a long, light wire tail, and connected with the apparatus by a wire line. It is understood that the Chinese Government intends to use the Marconi system of telegraphing at the forthcoming autumn manoeuvres at Paotingfu.

RAILWAYS, SUPPLIES, ETC.

SHANGHAI-NANKING LINE.—The construction work on the section of Chinkiang of the Shanghai-Nanking line has been commenced.

CIRCUM-BAIKAL RAILWAY.—It is reported that the new Circum-Baikal Railway has been totally destroyed. Russia has ceased the transportation of troops to Manchuria.

RAILWAY EXTENSION, JOHORE.—The railway extension from Johore Bahru to the frontier of Malacca is proceeding apace, and has now been constructed within two m, of Tampoi in Johore.

JAPANESE MANCHURIAN LIGHT RAILWAY.—This line, which starts from Antung-shien, is now said to have been completed as far as Motienling Pass. Another line to the Kirin region is being constructed with dispatch.

RAILWAY SURVEYS, F. M. S.—The following surveys for a system of light railways in Perak are being made: Tronoh to Ipoh, 13 m.; Tapah Road to Temoh, *via* Tapah and Chenderiang.

CANTON-KOWLOON RAILWAY.—The viceroy of Canton and the British consul are negotiating for the construction of this line. That portion of the road which leads through Chinese territory will be built by the Chinese Government.

CANTON-HANKOW RAILWAY.—Negotiations for handing over this line to China have been completed in Washington The Hanyang ironworks are employed night and day in the manufacture of iron rails and other railroad materials.

RAILWAY CONSTRUCTION, BURMA—Good progress is reported to have been made on the Pegu-Martaban line. Of earthwork about half has been done. Good progress is also reported on the Henzada-Kyangyin line. The earthwork is nearly completed.

RAILWAY CONTRACT, CHINA.—The Chinese Government has placed an order with a certain French firm for 5,000 rails, to be delivered within 6 mos. from date of contract. The rails are for the construction of the line between Peking and Changkakou.

KWONG-CHOW-WAN RAILWAY, CHINESE FRONTIER.—A Chinese merchant, He Fan, sent a petition to the viceroy of his province applying for permission to join with certain foreign merchants in constructing the Kwong-chow-wan Railway on the Chinese frontier, and was refused, because the Chinese are afraid that endless trouble would arise if foreign capital be allowed.

RAILWAYS IN SHANTUNG.—The gentry of the Province of Shantung have decided to build railways in that province themselves. Lu Hai-huang, president of the Board of Works and Treaty Revision Commissioner in Shanghai, has been appointed their representative. They have memorialized the Peking Government to appoint Wang Hsi-fang the director-general of the Railway Administration throughout the Province of Shantung.

SUNNING RAILWAY, CHINA.—Chan Yi-Ki, one of the promoters of the Sunning Railway, has returned from America to Hongkong, and at a subsequent meeting of the Sunning Commercial Company, the Sunning Railway affairs were put before the meeting. It is said that Chan returned with about $1,300,000 gold, which is lying in two of the Hongkong banks and which represent a portion of the capital subscribed by the Sunning people in America.

YUNNAN-SZECHUAN RAILWAY.—This line has been decided to be built with China's own funds, and the regulations have been presented to the Peking Government and a rescript issued to the proper authorities to attend to the matter. The Waiyupu, it is reported, has found some difference between the regulations of this proposed line and those of the Szechuan-Hankow Railway, and has ordered the viceroy of Yun Kwai to revise the regulations to coincide with those of the Szechuan-Hankow enterprise.

IMMENSE JAPANESE PURCHASES.—Japan continues to place immense orders for railway materials with manufacturers in the United States The latest announcement is that the Tokyo Government has just bought in the American market for immediate delivery 150 locomotives, from the Baldwin Works, to cost $2,225,000; 350 steel bridges from the United States Steel Corporation, to cost $500,000, and 2,000 steel cars, to cost $2,000,000. Apparently this mass of material is for work in Korea and Manchuria.

MALACCA RAILWAY.—The latest report from Mr. G. W. Fryer, chief resident engineer of the Malacca-Pulau Sebang Railway, states that the whole of the 21 m. is now linked in the junction effected with the Negri Sembilan extension at Tampin. Out of a total of 89 bridges and culverts, 85 have been completed and the remaining 4 are in progress. All station buildings at Malacca, Durian Tunggal, Alor Gajah and Tampin are nearly finished. The total amount expended on the railway to date of report was $271,717.

STUDYIND RAILWAY ENGINEERING, JAPAN.—There are now over 200 Chinese students in Japan studying railway engineering at their own expense. The majority of these students are natives of Hupeh, and as they are short of funds many have been obliged to give up their studies. This having been brought to the knowledge of Viceroy Chang Chih Tung, through a returned goverument student, the viceroy contributed $20,000 towards the expenses of the students, besides sending another batch of students to Japan.

JAPANESE RAILWAYS IN KOREA.—The latest report from Japanese sources with reference to the Korean railways is to the effect that trains will be running from Fusan to Seoul by January 1st, and that the military railway to Wiju will be completed as far as Pingyang. In March next ground will be broken for the Seoul-Gensan line. Surveyors have already started work, and it is hoped that the line will be finished by the end of the present year. In connection with the Seoul-Chemulpo line it will form the transpeninsular route between the Yellow Sea and the Sea of Japan. The trunk line from Fusan to the Yalu, and from Antung to Liaoyang in Manchuria, will bring Japan into direct touch with the Chinese Eastern Railway.

RAILWAY TO TANJONG PAGAR DOCKS, SINGAPORE.—Mr. J. H Williams, resident engineer, reporting on the progress of the work during July on the Singapore-Kranji railway extension to Tanjong Pagar Docks, 61,112 cub. yds. of earthwork were completed to date. On the two major bridges well sinking was done to the depth of 52 and 38 ft. respectively. Work was in progress on three minor bridges and the brickwork had been completed on these. Platelaying was commenced at Pasir Panjang station-yard. Work was also done on four level crossings and railway are laid through Nelson and New Bridge roads. Favorable progress was made on station buildings and porters' lines at Borneo Wharf and Alexandra Road, and on the coolie lines at 4 m., 15 chains.

ELECTRIC LIGHTING, ETC.

TIENTSIN PRESS LTD., TIENTSIN.—The stationery department of the Tientsin Press, Ltd., now has electric light in use.

SINGAPORE TRAMWAYS.—The Singapore Electric Tramway Company has been granted an extension of the time limit for the completion of its system.

LIGHTING CONTRACT, KUALA LUMPUR.—Messrs. Howarth Erskine, Ltd., of Singapore, have secured the contract for lighting protection at the town hall and sanitary board offices at Kuala Lumpur.

WATERWHEELS, JAPAN.—The Pelton Water Wheel Company, of San Francisco, Cal., reports the sale of a 500-h. p. wheel, through Messrs. Mitsui & Co., for use in an electric light station in Japan.

ELECTRIC LIGHT PLANT, PEKING.—The construction of the electric light plant at the Chinese capital is progressing. The central station is inside the Tartar City but the service, it is understood, will be extended to the Chinese City.

CONTROL OF TELEPHONES, CHINA —The minister of the Board of Foreign Affairs at Peking has given notice that in future all telephones will be placed under the control of the Chinese Imperial Telegraph Administration, and that no private installations will be permitted in the interior. This, however, does not apply to private installations already established in the treaty ports.

ELECTRIC INSTALLATION, PERAK.—The new electric installation plant at the mine of the French Tin Mining Company, Perak, is a success, the heavy machinery having been splendidly erected and worked by a gas engine with great success. The gas is generated from charcoal at a daily cost of $14. The installation itself cost $70,000 to erect, and has reduced the machinery cost of working from 10 to 2 cts per picul of tin.

WATERWORKS AND IRRIGATION.

WATER SUPPLY SCHEME, KUALA KANGSAR, S. S.—This water supply scheme is said to be one of the cheapest works in Perak? It is estimated to cost under $70,000.

IRRIGATION, PERAK, F. M. S.—On the completion of the irrigation works in this Malay state, next year, the office of the irrigation engineer will be moved to Parit Buntar.

RANGOON WATERWORKS.—The application of the Rangoon Municipal Committee for a loan of Rs. 17,29,000 for the improvement of drainage and water system, and their extension, is published in the *Burma Gazette*.

WATERWORKS, NANKING.—Expectant Sub-Prefect Kung has applied to undertake the waterworks in Nanking, and the Board of Commercial Affairs has ordered the viceroy to report in detail if the gentry is capable of carrying out the project.

YE-U CANAL, BURMA.—The estimate of Rs 35,21,000 including indirect charges, for constructing the Ye-u Canal to take off from the right bank of the Mu River opposite the headworks of the Shwebo Canal, in Burma, has been sanctioned. The tract of country to be irrigated is situated in the Ye-u civil sub-division of the Ye-u District on the E. side of the Mu River. The canal will be 35 m. long, after which it continues a distributory channel for about 11½ m., and there will also be a branch canal for 13 m. The area commanded by the canal will be irrigated annually. The net revenue anticipated annually is Rs.1,89,000 per annum, equivalent to 5.37 per cent on the total outlay.

ARTIFICIAL IRRIGATION IN CHINA.—Mr. James Hutton, a well-known English writer on China's economics, has just published some interesting facts about the Kuan Hsien River system in the Chen-tu Plain. This vast area, of about 5,000 sq. m., is irrigated by the water system Mr. Hutton explains, and is thereby among the most fertile plains of China. It is said by the Chinese that the Chen-tu Plain originally was a vast marsh, through which the waters of the Min River flowed at will; and the casual observer might easily see that the present state of the works has been a gradual evolution, and doubtless many heads and hands have combined, many ways and means have been tried, and much treasure spent in order to regulate the wild and chaotic waters and introduce a system of artificial irrigation.

PENANG (S.S.) WATER SUPPLY.—The municipal engineer of Penang, Mr. L. M. Bell, has reported on the proposed additional water supply there from Batu Feringgi and other streams at the N. end of Penang Island. The report deals practically with three districts—Tanjong Bungah, Batu Feringgi, and Telok Bahang. After giving comprehensive details concerning various streams and sources of supply, the engineer shows that the Sungei Klean, in the Tanjong Bungah District, is the cheapest and most expedient source of tiding over the present difficulty. The present supply may be put down at 4,500,000 galls. daily. According to one estimate we may obtain from Sungei Klean an additional supply of 1,000,000 galls. per day, costing 6 cts. a thousand galls., the capital cost being $330,000. It would be possible to lead the supply from Sungei Klean into the waterfalls. This is the cheapest recommendation. On the other hand, if the municipality wishes to provide for the future too, it may take up the Batu Ferringgi scheme, giving an addition of 2,953,000 galls. costing 11 cts. a thousand galls., the capital cost being $1,853,000. Between these schemes there are two modifications.

BUILDINGS.

BUILDING CONSTRUCTION, UPPER PERAK, F. M. S.—The amount spent on works and buildings in this state during the last year was $11,185.89.

SINGAPORE CRICKET CLUB.—This organization contemplates the expenditure of $32,000 for the extension of its pavilion along extensive lines.

OFFICE BUILDINGS, PEKING.—Large offices at the headquarters of the Lu-Han Railway, Peking, are being built at the corner of Italian and Taichuchau roads.

AMERICAN CONSULATE-GENERAL, NEWCHWANG.—The new building of the American Consulate-General at this post is about ready for occupancy. It is a 2-story brick structure of great dimensions, with an attic. It is solid and artistically designed. The consul-general here is Mr. T. Sammons.

RAILWAY STATION, TIENTSIN.—According to the *China Review*, the raising of the ground for the new city railway station at that place is now almost completed, and the foundations will shortly be laid. On either side of the fine road from the station to the viceroy's yamen a number of new houses are being built by foreigners and Chinese officials. These houses are all of brick, some of them being altogether in foreign style, and some partly Chinese.

BRIDGES.

NEW STRUCTURE, TIENTSIN.—The bridge built by the Austro-Hungarian authorities from their concession to the city side of the river, has been formally opened.

BRIDGE DESTROYED, KOREA.—*It is reported that the* bridge over the Milyang River on the Seoul-Fusan Railway, has been totally destroyed by a storm, causing traffic to be suspended for 170 m.

LUHAN BRIDGE, CHINA.—The Luhan railway bridge over the Hoang-ho is to be insured by a foreign company for Tls. 4,000,000. The insurance company is sending out an engineer to examine the bridge before finally taking the risk. The policy is to protect the structure against damage or destruction by the swift and uncertain current of "China's Sorrow."

PUBLIC WORKS.

ROADS AND STREETS, UPPER PERAK F. M. S.—During one year $15,897.80 were spent on roads, streets, etc., in this state, and about 50 m. of cart road and agricultural paths kept in good order.

ROAD IMPROVEMENTS, PEKING.—Many improvement, to the roads of Peking are under way. The Hata, men and Taichuchan roads, in addition to Italian and Nanting-men roads, have been mecadamized, and are fine highways. No heavy carts are allowed on them, a special space being reserved on either side for native traffic.

TELUK ANSON-HUTAN MELINTANG ROAD, LOWER PERAK,, F. M. S.--The earthwork on this improvemen has been completed and the metal required collected, More than 10 m. of the road have already been opened to traffic. This road when produced from the point at which it crosses the Jandarata Canal to the coast, will be a most important factor in the development of the district.

FEDERATED MALAY STATES SURVEY.- During the last year the field staff of the Revenue Survey Department, Federated Malay, States, surveyed 842 town and village lots, 433 lots containing f0,359 acress of mining land, 301 lots containing 2,735 acres of agricultural land, 642 miles of traverses of roads' rivers, etc., and domarcated or subdiivded 4.836 lot4 containing 15,370 acress of native holdings, besides 20,000 acress of forest reserves.

IMPROVEMENTS IN CALCUTTA.—The Government of Bengal has put forth a schame for the improvement of Calcutta by checking over-crowding and clearing away slums. The schome will be carried out by an improvement truts, consisting of president and six trustees, all appointed by the government, and their functions will be transferred to the Calcutta Corporatton as soon as the work is completed The work consists of the making of broad roads, the provision of open spaces, and the acquisition of land for expansion. The rate of progress will be conditioned by the receipts. If the measures proposed yield results according to the present estimate, the whole work should be completed within 20 yrs. The proposals look to capital expenditure of 822 lakhs of rupees. Roughly proposed new roads acunt for 505 lakhs, open spaces for 172 lakhs, land acquisition for expansion 100 lakhs, and improvements to such land 50 lakhs.

PORT WORKS, DREDGING, DOCKS, ETC.

DREDGING AT TIENTSIN.—A bucket dredger is now engaged in dredging operations a short distance above the Austrian Bridge. This structure is still under repairs.

IRON LIGHTHOUSE, KUALA SELANGOR, S. S. -Tenders have been iuvited by Trinity House, London, for the construction of an iron lighthouse, Kuala Selangor Hill Lighthouse, Straits Settlements, together with a lantern and plate glass for the same.

DREDGES FOR SIAM.—Two new dredges recently arrived at Bangkok from Europe for the Irrigation Department of the Siamese Government. They were specially made by Messrs. A. F. Smulders of Rotterdam for opening up and clearing old klongs that have become practically cleared up. Each has a capacity of 75 cub. met. an hour.

FLOATING DOCK, TSINGTAO. CHINA.—A large floating dock having a bearing capacity of 16,000 tons and a length of 150 met , having been successfully launched at Tsingtao, has been towed by tug boats to the place prepared for it in the harbor and moored. This is the largest floating dock launched after having been fully completed on shore, according to the *Hongkong Telegraph*.

COALING PLANT, PHILIPPINE ISLANDS.--The following bids have been received by the Bureau of Yards and Docks, Washington, D. C., for coal storage and coal handling plant, Naval Station, Olongapo, P. I.: The Snare and Triest Company, 143 Liberty-st, New York, Item $1,500,000 conditional; (2) $500,000 conditional; (3) $500,000 conditional; (4) $500,000 conditional; J. G. White & Co. Inc., 42 Exchange-pl, New York, 1,$499,500.

HONGKONG DOCKYARD EXTENSION.—A parliamentary white paper, recently issued, shows the work upon which expenditure is proposed to be provided for under the British naval works bill of the present session. The total estimated cost of the Hongkong dockyard extension is given at £1,500,000. The estimated expenditure for the fiscal years 1905-1906 and 1906-1907 is given at £476,000 The works are expected to be completed in the fiscal year 1907-1908.

SHIPBUILDING, MARINE, ETC.

OSAKA SHOSEN KAISHA.—This Japanese steamship company has ordered from the Kawasaki Shipbuilding Company the construction of two passenger steamers of 2,500 tons each for its Formosan trade.

NIPPON YUSEN KAISHA CONTRACTS.—It is announced that this Japanese steamship company is about to place contracts with Clyde shipbuilding firms for eight new liners.

SUNKEN STEAMERS SOLD.—Twenty-one steamers, sunk outside Port Arthur, have been sold by tender to five different Japanese, who accepted some three vessels each, their bids ranging from -Y-5,000 to -Y-22,000.

SISTER SHIPS LAUNCHED, JAPAN.—*Ike-maru* and *Tsushima-maru*, sister ships, built at Nagasaki for the Sanyo Railway Company, to run between Shimonoseki and Fusan, have been launched, and will soon be ready for service. *Ike-maru's* contract speed is 13 knots, but she made 14½ on her official trial trip.

NEDERLAND STEAMSHIP COMPANY.—This company is building at Amsterdam two new passengers steamers to replace two of the slower ones. These new ships are expected to make the run from Europe to the Far East as quick as that of any other companies. They are not expected to be ready for sailing until the end of next year.

NEW CHINA COAST STEAMER.—A new steamer, built to the order of the Chinese Engineering and Mining Company, is reported to be *en route* from London to Shanghai. She is to be on the Shanghai-Chinwangtao run, and is called the *Kaiping*. She carries 3,000 tons dead weight and has accommodation for twenty-five saloon passengers. She is fitted with electric light and fans, as well as other up-to-date comforts of modern passenger steamers.

SALE OF ARMY TRANSPORTS, JAPAN.--It is announced in the daily press that an Anglo-Japanese corporation, whose identity is not disclosed, has purchased forty of the best steamships which the Japanese Government impressed for military service at the outbreak of the war with Russia. Messrs. Mitsui & Co. are said to have negotiated the deal, the object of the purchasers being to make extensive alterations in the ships and then place them in the commercial carrying service of Japan.

FERRY STEAMERS, NAGASAKI.—Two ferry steamers are now under construction at the Mitsu Bishi dockyard, Nagasaki, for the Sanyo Railway Company's service to Korea. The entire Japanese system will thus be brought into close connection with the Korean system, through that with the Manchurian and Siberian railways, and so on through the European railways to London. Before long the traveller may make the journey from Tokio to London with scarcely 12 hrs. on the water.

NEW DOLLAR LINE STEAMSHIP.—A new steamship, to be known as *Bessie Dollar*, will be launched at Port Glasgow, Scotland, in October, for the Robert Dollar Steamship Company of Victoria, B. C., and will be used in the Pacific for general trade, but particularly for the lumber-carrying business. The vessel is a duplicate of *Hazel Dollar*, lately built in Scotland, and will have a capacity for 7,080 tons of freight, or about 3,000,000 ft. of lumber. Captain Gow will command *Bessie Dollar*. He brought *Hazel Dollar* out to the Far East, but was succeeded by captain C. H Cross.

LAUNCH OF "HSIN CHANG."—This new vessel, built for China coast trade at Yoker-on-Clyde by Messrs. Napier & Millar for the China Merchants' Steam Navigation Company, has been launched. Her dimensions are as follows: Length 270 ft., breadth 40 ft., and depth 21 ft. 6 in., with a gross tonnage of about 2,000 tons. The machinery, which is being supplied by Messrs. Dunsmuir & Jackson, Govan, consists of triple-expansion engines, having two boilers of large size. The hull and machinery have been constructed under the direction of Messrs. G. & J. Weir Ltd., engineers, of Glasgow.

JAPAN'S INCREASED MARINE.—During the war Japan purchased 230,000 tons of shipping and 156,000 tons were chartered to replace the vessels requisitioned for the public service. Moreover 140,000 tons were captured, and since the ships destroyed and lost aggregate less than 60,000 tons, there has been a net increase of 450,000 tons as compared with the period immediately preceding the war. Whereas the entrances and clearances of foreign vessels in Japanese ports showed a decrease of 60 per cent during the war, there was an increase of 20 per cent in the quantity of goods moved, which shows that great activity must have prevailed in Japanese shipping circles during the period under consideration.

WEIHAIWEI SHIPPING.—According to a recent statement in *The South China Morning Post*, during the year 1904 steamers numbering 315, exclusive of naval colliers, government transports, and small coasting steamers, entered Weihaiwei, representing a tonnage of 317,595 tons. The figures for the two previous years are as follows: 1902, 146 vessels with an aggregate tonnage of 151,809; 1903. 242 vessels with an aggregate tonnage of 244,940. These figures do not include small steamers mostly owned by Japanese trading with Chefoo, Dalny, and other places in the Gulf of Pechili A record is now being kept of such steamers, which shows that during the first quarter of 1905 no fewer than sixty-four entered Weihaiwei, representing a tonnage of 14,154 tons.

LAUNCH OE "TJILIWONG."—A new steamer for the Java, China-Japan line, *Tjiliwong*, of which the head agency is at Hongkong, was recently launched at Amsterdam. The dimensions of the vessel are as follows: Length 373 ft., width 49 ft, 5 in., depth 30 ft. 1 in., while the capacity of 6,750 English tons. The Steamer is ,constructed according to the spar deck type, and although designed for the carriage of cargo, there are two cabins for forst -class and six cabins for second-class passengers, as. well as a drawing-room, bath-rooms, etc. The steamer will be propelled by engines of the tripl-expansion type having a capacity of 1,669 h. p. and giving a speed 10.25 English miles. The complete engines are also constructed at Amsterdam, and the steamer is the largest vessel which has over been constructed in that city.

"KAIPING'S" TRIAL TRIP.—The steamer *Kaiping*, built to the order of the Chinese Engineering and Mining Company by Messrs. Swan, Hunter & Wigham-Richardson, Wallsend-on-Tyne, was given her trial trip recently. The vessel measures as follows: Length over all, 322 ft.; beam, extreme, 44 ft. 3 in.; and depth moulded, 23 ft. She has been designed for the owner's special trade on the China Coast. She has been built to Lloyd's highest class, spar-deck rule Accommodations have been provided for first-class passengers amidships and a large number of Chinese passengers aft. The vessel has been designed to carry a large cargo on a draught of 18 ft. 9 in., and to steam 12½ knots at this draught. The engines have been constructed by the Wallsend Slipway and Engineering Company, and consist of a set of triple-expansion engines. Steam is supplied by two large single-ended boilers working at 180 lbs. pressure. On the trial trip the machinery worked without a hitch, and a mean speed of 13 knots was obtained, the vessel being fully loaded. The ship has been built under the supervision of Captain Macfarlane.

MINES AND MINING

COAL DISCOVERY, PORT ARTHUR.—A splendid seam of coal is reported to have been discovered by accident recently at Port Arthur, 2¼ m. from Pigeon Bay.

RUSSIAN OIL INDUSTRY, CHINA.—The Tarters are prohibiting the Russian oil companies from resuming work in the oil districts of thesr territory.

DUTCH COAL, SUMATRA.—The government coal miner at Ombilien, Sumatra, produced during the yeas 1904 205, 584 tons against 201,311 tons in 1903 and 180,000 tons in 1902.

MANCHURIAN PETROLEUM.—It is reported that the Standard Oil Company of New York is taking steps to get hold of the oil fields of Manchuria now that the Russian grip on them has loosened.

COAL IMPORTS, HONGKONG.—The annual report of the Department of Mines, New South Wales, shows among the greatest decreases in coal exports of 1904 that 22,337 tons less than in the previous year were sent to Hongkong.

MINES IN LIANGKIANG PROVINCES.—The viceroy of these provinces has memorialized the Chinese Government that Chinese only should be permitted to develop the mineral resources of this territory, and foreigners excluded.

TIN MINE SOLD, KUALA LUMPUR.—The Sungei Bosi mine at Kuala Lumpur has just changed hands, Towkay Foo Choo Choon having taken it over from Towkay Yap Loong Heng for the sum of $62,000. The property covers an area of over 120 acres.

FRENCH CONCESSION, KWANGSI PROVINCE, CHINA.—A French syndicate which holds a valuable lead mine concession in this province has asked permission of the governor to resume operations which were stopped on account of the rebellion.

MANCHURIAN MINES IN JAPANESE HANDS.—It is reported that all the mines near Liaoyang Tehling, FengHuangchen, and other places in Manchuria, have been worked lately by the Japanese. The Chinese authorities report that they are never informed before-hand of the transfer of such property. It is said that there is an army of Japanese engineer surveying the mineral resources of the country.

BRITISH GOLD MINES, KOREA.—According to the *Korea Daily News* the British gold mines at Ap-tusan, Korea, have "petered" out and will no longer pay for working by foreign methods. The owners of the property, the Pritchard-Morgan Syndicate, hope, however, to get some of their money back by farming out claims to Koreans, who, with their primitive methods and low expenses, can still work the property at a profit.

GOLD MINE DISCOVERY, CHINA.—A marvellously rich gold mine is reported to have been discovered in the Loo Loong District of Wing Ping Prefecture of Chihli Province So plentiful is the supply of gold-dust and nuggets that it is reported that a party of thirty miners obtained 1,300 ozs. of gold from alluvial washings in ten days The government has taken possession of the find, and it is said they will immediately be worked on an extensive scale.

EAST BORNEO COMPANY, AMSTERDAM.—The working of the coal mines in this company's Far Eastern possessions is being confined to what is strictly necessary, the position of the company being overshadowed by the contracts with the Royal Petroleum Company, which is working bores on ground for which concessions were given to the East Borneo Company. The latter's loss in 1905 is stated at fl.60.261, which is booked on the head concessions, etc. The Koetie Exploration Company has also ground on which the Royal Petroleum Company is making a survey for the working of petroleum.

MINING CONCESSION, YANGTSZE VALLEY, CHINA — Sir John Lister Kaye has obtained an important concession in the Province of Anhui, where, it is believed, a perfect deposit of iron ore exists, distant only 3½ m. from the Yangtsze River. The concession is granted for a period of 60 yrs with a possible extension, and the total area of the concession is about 50 sq. m. It is estimated that there are 6,500,000 tons of iron ore in sight, and possibly a further 3,500,000 tons, and that if smelters are erected 1,830,000 tons of pig iron could be made from 5,500,000 tons of ore to be selected from the above-named mass. Mining engineers are now at work developing the property.

GOLD DREDGING, KELANTAN, SIAM.—A progress report observes that in consequence of various difficulties in erecting the dredgers in the Dependency of Kelantan it has been found necessary to engage a highly qualified mechanical engineer. As a result Mr. J. F. Gage has been secured as general manager of the properties. In spite of a series of mishaps with the first dredger the work done has been sufficient to confirm the opinions expressed by experts that the Kelantan company possesses valuable property. Mr. Gage gives it as his opinion that the ground already worked will pay to go over again, and that for all practical purposes the property has not yet been touched. It is hoped that before the end of the current year three dredgers will all be at works.

KOLAR GOLD FIELDS, INDIA.—Following are the returns for the month of August, 1905: *Balaghat.*—4,200 tons of quartz crushed yielded 3332 oz. and 2,750 tons of tailings cyanided produced 290 oz., making a total production of 3,622 oz. of gold as compared with 3,547 oz. in July last. *Champion Reef.*—Milled 19,410 tons which produced 15,622 oz. 17,277 tons tailings treated by the cyanide process produced 2 381 oz., making a total production of 18,003 oz. of gold, as compared with 18,012 oz. in July last. *Hutti*—(Nizam's) 1,10, oz. of gold from 2,200 tons of quartz crushed, and 110 oz. from 1,300 tons of tailings cyanided making a total yield of 1,217 oz. of gold as compared with 1,106 oz. in July last. *Mysore.*—16,050 tons of quartz crushed produced 15,011 oz. estimated gold in melted copper plates 1-4 oz., and 14,175 tons of tailings cyanided yielded 1.853 oz., making a total production of 17,039 oz. of gold, as compared with 17,039 oz. in July last. *Mysore West.*—Mill ran 684 hours and crushed 2,112 tons and yielded 1,001 oz. bar gold. *Nundydroog.*—6,500 tons of quartz crushed yielded 4.666 oz. and 7,290 tons of tailings cyanided yielded 705 oz., making a total production of 5,371 oz. of gold, as compared with 5,754 oz. in July last. *Ooregum.*—Staff crushed 10,314 tons gold produced 4,430 oz. and slimes and tailings cyanided 10,201 tons, yielded, 1,076 oz., a total production of 5,506 of gold as compared with 5,487 oz., in July last.

IMPROVEMENTS IN THE PHILIPPINES.

WATER DISTRIBUTION SYSTEM, MANILA.—An extension of the water mains at Santa Mesa Heights is under construction.

MUNICIPAL BOARD, MANILA.—Sr. Cruz Herrera, president of the Municipal Board of Manila, has retired from office. His successor is Judge Roxas, of the Court of First Instance.

PROVINCIAL SUPERVISORSHIP, BULACAN.—Mr. Roy C. Hardmann, C. E., assistant in the Bureau of Engineering, has been appointed to the office of supervisor of the Province of Bulacan.

SCHOOL OF ENGINEERING, MANILA.—Certain Filipinos who have graduated as civil engineers abroad have petitioned Commissioner Smith, Secretary of Education, to establish a school of engineering in Manila for the natives of the Islands. The matter is receiving serious consideration.

AYALA BRIDGE, PASIG RIVER, MANILA.—The contract for the construction of the abuttments and piers of the new Ayala Bridge, spanning the Pasig River, Manila, and removing the old structure, has been awarded to the Atlantic, Gulf and Pacific Company, of New York, San Francisco, Seattle, and Manila.

RAILWAY BIDS, PHILIPPINES.—The date on which the bids for the construction of the Philippine railways are to be opened at Washington has been postponed from November 1st, 1905, to December 15th, or for 45 days. This is to enable the Governor-General to be present. The conditions of the bids otherwise remain the same.

HOTEL CONSTRUCTION, MANILA.—According to Commissioner W. Cameron Forbes, Secretary of Commerce and Police, the Government will advertise in about 4 mos. for bids for the construction of the big hotel which is to occupy one wing of the Luneta reclamation extension. One feature of the hotel will be a protected wharf or dock which will be very convenient for the use of launches.

PORT WORKS.—By resolution of the Philippine Commission, dated September 14th, 1905, the sum of ₱36,000 was appropriated for the investigation of ports throughout the islands, in connection with the proposed railroad construction. This work is to be carried out by two survey parties under the direction of Major L. W. Fisk, C. E., U. S. Army, officer in charge of port works.

MOAT IMPROVEMENTS, MANILA.—The grading and terreplaning of the moat around the walls of the old city will begin at an early date. The surveys have been completed and the lines run by the city engineer showing where streets and sidewalks will be located. This improvement will also include the new drive along the Malecon from the Anda Monument to the Legaspi Monument on the Luneta.

EPISCOPAL CATHEDRAL, MANILA.—The Atlantic, Gulf and Pacific Company has secured the contract for the construction of the new Episcopal cathedral. The building is to be of reinforced cement throughout, the foundation resting on piles, and must be completed within a year after the work is begun. Mr. William H. Robinson, C. E., has been appointed engineer and supervisor of construction.

TARLAC RIVER CONTROL.—Surveys and estimates have been completed for the protection of the country adjacent to the Tarlac River, Northern Luzon, from overflows to the E. This work will be of large benefit to the section involved, and is the first practical step of the Insular Government in the general scheme of river control now being investigated in Luzon. The estimated cost of the levy construction for which plans have been prepared, is ₱100,000.

NEW TELEPHONE SYSTEM, MANILA.—Construction work on the new telephone system for Manila will soon be commenced by the Pacific Coast Telephone Company of San Francisco, owners of the franchise. Poles and wiring are now on the way from America. The "central energy" system of 'phones, the latest and most serviceable, will be installed. With this instrument there is no necessity of ringing up central, the mere lifting of the receiver from its hook notifying "central" who calls for the number wanted.

CITY LIGHTING, MANILA.—Mr. H. Baer, of Solothuran, Switzerland, has petitioned the Municipal Board of Manila for a franchise for the installation of a gas-lighting system in the city. The franchise is to continue for 50 yrs., at the expiration of which time the applicant agrees to sell the plant to the municipality, reserving, however, the right to sell the system to a third party prior to the expiration of the half century. The application is in the hands of the committee on illumination for investigation and report.

GRAVITY WATER SUPPLY, MANILA.—Major J. F. Case, C. E., chief engineer, Department of Sewer and Waterworks Construction, reports that work on the new conduit road is being pushed. About 9 m. of road is immediately necessary, and of this distance 4 m. are practically complete. This road parallels the pipeline and conduit and will be used for construction purposes. After completion of the work it will become a public highway. Cable reports from Washington indicate that many contractors are interested in the sewers and water system construction.

MUNICIPAL BUDGET, MANILA.—The Municipal Board of the City of Manila has cut out of the list of estimates for the fiscal year 1905-1906 the proposition to purchase Suspension Bridge, which spans the Pasig River, thus saving ₱92,000, and likewise eliminated an item of ₱15,000 for the construction of streets through the San Lazaro Estate. The board has also reduced the figures for the repair and construction of river walls along the Pasig from ₱336,000 to ₱56,000, thus effecting a total reduction in the estimate of ₱387,000. The land tax has also been reduced from 2 per cent to 1½ per cent. The board has asked the Philippine Commission to grant the municipality a loan of ₱280,000 for 5 yrs., payable at the rate of ₱56,000 annually.

INSPECTING PROSPECTIVE RAILWAY ROUTES.—Messrs. Wallace and Holabird, engineers representing the Harriman railway interests in America, after making a careful survey of the proposed railway routes set down by the government in the Philippines, have just returned from Baguio, the summer capital, where they went with Mr. J. W. Beardsley, Consulting Engineer to the Philippine Commission, to inspect the proposed route to that point, along what is known as the Benguet Road. General Manager Horace L. Higgins, of the Manila Railway Co., Ltd., accompanied by Mr. Metcalf, the engineer representing Messrs. Speyer Brothers of New York and London, who control the stock on the Manila-Dagupan System of railways, has just returned from a tour of inspection of the lines with reference to the future railway construction under government favor. It is understood that the Speyer interests will be prominent bidders for the government concession in the Island of Luzon.

INVESTIGATING MANILA PORT WORKS.—Mr. D. D. Mackie, consulting engineer to the Colonial Government of Singapore, has been in Manila on behalf of his government seeking information on the question of the dock and docking improvements which the Philippine Government is about to inaugurate here in connection with the harbor improvements. Mr. Mackie's mission has special reference to the expropriation of the Tanjong Pagar docks at Singapore by the British Government. It has been decided that the hearing of the arbitration will take place in Singapore about the 20th day of the current month. Sir Michael Hicks-Beach, who will preside at the arbitration, arrived in Singapore from England the fore part of the month. His confréres from the home country are Mr. Ommaney, solicitor for Messrs. Sutton, Ommaney & Rendall; Mr. Place, valuer, of Messrs. Wheatley, Kirk & Price, and Mr. Maltby, accountant, of the Deloite, Dever and Griffiths Company, all of London.

CEBU IMPROVEMENT.—The destructive fires which visited Cebu, capital of the Province of Cebu, in 1902 and March of the current year, have afforded an opportunity for the improvement and widening of the streets of that city. An improvement committee consisting of Mr. J. W. Beardsley, C. E., consulting engineer to the Philippine Commission; the provincial supervisor of Cebu, the *fiscal* of the Province of Cebu, and the president of the Municipality of Cebu, was appointed by resolution of the commission, dated March 21st. to have prepared detailed plans for the widening of streets through the burned area, and the laying out of new streets. To expedite this work the commission has granted the committee power to "acquire title to all lands within said area by gift, cession, or transfer from present claimants of said lands," and to make the necessary allotment of new tracts of land for the purpose of completing the work. A commendable spirit has been shown by the land owners of Cebu, according to the members of the committee, in this matter, and there seems to be little doubt that the city will be greatly benefited by the contemplated alterations

FINANCIAL NEWS.

SIAM ELECTRICITY COMPANY, BANGKOK.—This company has declared a half-yearly dividend of 6 per cent.

TEBRAU COMPANY, HONGKONG.—This planting venture, which works in Johore, has taken steps towards liquidation.

SAVINGS DEPOSITS JAPAN.—The deposits in the Japanese Postoffice Savings Banks have increased -Y-10,-500,000 in the last 8 mos.

HONGKONG HOTEL COMPANY, LTD.—This company made a profit of $114,546 in the first 6 mos. of 1904. A dividend of 10 per cent will be paid.

PENANG HILLS RAILWAY COMPANY.—The Penang Hills Railway Company, of Penang, S. S., has decided to float an additional loan of $25,000 on debentures, at 6 per cent.

UNION INSURANCE SOCIETY, HONKONG.—The shareholders of this society have been notified that a dividend of 40 per cent is declared and handsome sums carried to the reserves.

HONGKONG BUDGET.—The Hongkong Budget is expected to close this years with a deficit of over $78,000. The revenues for 1906 are estimated at $7,347,395, with an outlay of $7,056,955.

COMMERCIAL BANK, TIENTSIN.—A commercial bank named Tung-Yu is being established by the Chinese Chamber of Commerce. The capital subscribed is Tls. 70,000, Tls. 30,000 being advanced by the officials.

DOUGLAS STEAMSHIP COMPANY, HONGKONG.—At the end of the business year June 30, 1905, the book values of this company amounted to $197,100,55. The company will pay a dividend of 7 per cent on its capital stock, amounting to $70,000.

KLANG COFFEE CULTIVATION COMPANY, PENANG, S. S.—The annual general meeting of this company was held in Penang recently. The loss on the year's working was $2.732, but there was an actual profit on the old working. The net revenue for the year was $20,732.

NIPPON GINKO, JAPAN.—This Japanese bank, with a paid-up capital of £3,000,000, made a net profit for the first half of 1905 of £230,037, to which has been added £16,281 brought forward. It pays a dividend at the rate of 12 per cent *per annum*, puts £65,000 to reserve, and £17 to bonus and allowances, and carries forward £44,656. The total assets of the bank on June 30th last were £52,872,015.

ENGINEERING AMALGAMATION, SINGAPORE.—It has been officially announced that the proposed amalgamation of the engineering firms of Howarth, Erskine & Co., Ltd., and Riley, Hargreaves & Co., Ltd., has been abandoned. During the negotiations for the amalgamation the work of both companies was carried on separately as before, and the abandonment of the scheme caused no dislocation whatever.

INTERNATIONAL BANKING CORPORATION.—The Hongkong branch of this financial institution has removed from the old premises at No. 9, Queen's-rd. The new house of the bank has been handsomely decorated and furnished, and possesses one of the longest lengths of counters of any bank in the Far East. The offices are splendidly furnished and altogether they are ideally arranged for a bank in the tropics.

BANGKOK OPIUM FARM.—The whole of this enterprise has been taken over by Phya Dhipa Kosa, Phra Piboon (Siang Kee) and members of the former syndicate who held the last farm. This newly-formed syndicate has taken the farm at the full rental of Tcs. 8,800,000 *per annum* for 5 years.

YOKOHAMA SPECIE BANK, JAPAN.—At the half-yearly ordinary meeting of the Yokohama Specie Bank, Ltd., held at head office, Yokohama, recently, a dividend at the rate of 12 per cent was declared; -Y-220,000 added to reserve fund, and -Y-600,000 carried forward to current account.

BRITISH HUNAN MINING SYNDICATE, LTD.—This syndicate has been registered in London, with a capital of £10,300, in 10,000 ordinary shares of £1 each, and 6,000 deferred shares of 1s. each. Its object is to adopt an agreement between L. Spitzel of the first part, S. Neumann & Co. of the second part, Messrs. Farrar Brothers of third part, and this company of the fourth part, to acquire lands, mines and other properties and rights in the provinces of Hunan and Szechuan, China, or elsewhere, and to carry on the business of general miners, explorers, smelters, and reducers of ore and minerals, etc.

IMPERIAL CHINESE RAILWAYS.—The net half-yearly profits of the Imperial Chinese Railways for the 6 mos. ended March 1, 1905, amount to a little over £325,000, and if this rate of progress is maintained, as is confidently expected, the year's profits will, even after paying interest on the loan and providing the stipulated sum for amortization, amount to over £600,000. With this sum the Chinese Government has already

(Continued on p. XVII, advertising section.)

FAR EASTERN STOCKS AND QUOTATIONS

COURTESY OF BENJAMIN, KELLY & POTTS, SHAREBROKERS, HONGKONG, October, 1905.

STOCKS	WHEN ESTAB-LISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND	WHEN PAID	Approximate Return at Present Quotation* PER CENT	CLOSING QUOTATIONS
Banks.												
Hongkong and Shanghai Banking Corporation	1865	$10,000,000	80,000	$125	$125	*g* £1,000,000 *s* $8,500,000 *i* $250,000	... $1,702,728	30-6-05	£1.15/- at exchange 1/10½= $18.66.67 for first half-year 1905	21-8-05	5	$900 sellers London £91
National Bank of China, Limited	1891	£699,475	99,925	£7	£5	$200,000	.....$41,768	31-12-04	$2 (London 3/6) for 1903	1-2-04	—	$38 buyers
Marine Insurances.												
Canton Insurance Office, Limited	1881	$2,500,000	10,000	$250	$50	$1,400,000 *j* $81,739	..... $150,494	31-12-03	$17 for 1903	22-10-04	5	$337½ buyers
China Traders' Insurance Co., Ld.	1865	$2,000,000	24,000	$83.33	$25	$950,000 *f* $151,992 *j* $362,366 *u* $371,445	..... Nil.	30-4-04	$4½ for year ended 30-4-1904	8-12-04	5¾	$79 sales
North China Insurance Co., Ld.	1863	£150,000	10,000	£15	£5	Tls. 800,000	...Tls. 217,119	30-6-04	Interim of 7/6 for 1905	1-5-05	8	Tls. 82 buyers
Union Insurance Society of Canton, Limited	1867	$2,500,000	10,000	$250	$100	*s* $1,850,000 *g* £20,000 *f* $372,749 *j* $893,100 *u* $846,773	.....$2,078,997	30-6-04	$35 for 1903	21-10-04	4½	$780 buyers
Yangtsze Insurance Association, Ld.	1862	$800,000	8,000	$100	$60	$750,000 *i* $50,000 *j* $5,890	..... $599,364	31-12-04	$12 and $3 special dividend for 1903	12-4-05	8½	$172½
Fire Insurances.												
China Fire Insurance Co., Ld.	1870	$2,000,000	20,000	$100	$20	$1,000,000 *x* $218,039 *f* $2,241	..... $260,374	31-12-04	$6 dividend and $1 bonus for 1903	10-3-05	8	$87½ buyers
Hongkong Fire Insurance Co., Ld.	1868	$2,000,000	8,000	$250	$50	$1,200,505	..... $360,372	31-12-04	$34 for 1903	7-3-05	10	$340 sellers
Shipping.												
China and Manila Steamship Co., Ld.	1882	$750,000	(*1*) 30,000	$25	$25	$5,000	$8,832	31-12-04	$1 for 1904	27-3-05	5½	$18 sellers
Douglas Steamship Co., Ld.	1883	$1,000,000	20,000	$50	$50	$261,638 *i* $88,941	..... Nil.	30-6-05	$3½ for year ended 30-6-1905	25-9-05	10¾	$32 ex div.
Hongkong, Canton and Macao Steamboat Company, Ld.	1865	$1,200,000	80,000	$15	$15	*e* $250,000 *d i* $600,000 *f* $145,376	..... $8,064	30-6-05	$1 for first half-year 1905	16-8-05	7½	$26¾ buyers
Indo-China Steam Navigation Company, Ld.	1882	£1,200,000	(*2*) 60,000	£10	£10	£120,000 *i* £241,150 *h* £3,999	..... £4,435	31-12-04	12/- @ 1/10 7-8=$6.29.51 for 1904	13-7-05	6½	$95
Shanghai Tug and Lighter Co., Ld.	1903	Tls.1,500,000	200,000	Tls. 50	Tls. 50	*i* Tls. 25,000	... Tls. 43,762	31-12-04	Interim of Tls. 2. for 1905 Interim of Tls. 1¾ for 1905	28-8-05	7¾ 8	Tls. 59 sales Tls. 47 sales
Do. Preference			100,000			£400,000						
"Shell" Transport & Trading Co., Ld.	1898	£2,000,000	2,000,000	£1	£1	*i* £4,116	..... £58,852	31-12-03	Interim of 1/- (Coupon No. 5) for '04	1-1-05	4¾	21/- sales
"Star" Ferry Co., Ld.	1898 1900	$200,000	10,000 10,000	$10 $10	$10 $5	$65,000 *i* $24,257	..... $929	30-4-05	$1.80 $0.90 cents for year ended 30-4-05	29-5-05	5½ 3¾	$33 sellers $25 sellers
Straits Steamship Co., Ld.	1890	$500,000	(*3*) 5,000	$100	$100	$400,000 *e* $21,075 *i* $130,153	.... $21,231	31-12-04	$10 for 1904	21-3-05	7	$142½
Taku Tug & Lighter Co., Ld.	—	T.T 1,500,000	30,000	T.Tls.50	T. Tls.50	Tls. 98,000 *d* Tls.195,479 *e* Tls. 28,000 *i* Tls. 81,200	... Tls. 4,333	31-12-04	Interim of Tls. 2 for 1905	27-7-05	13¾	Tls. 29
Refineries.												
China Sugar Refining Company, Ld.	1878	$2,000,000	20,000	$100	$100	*e* $450,000 *r* $150,000	..... $42,812	31-12-04	Interim of $10 for 1905	18-8-05	10½	$230
Luzon Sugar Refining Company, Ld.	1882	$700,000	7,000	$100	$100	none	*Dr.* $85,987	31-12-04	$3 for 1897	24-3-98	—	$15½ buyers
Perak Sugar Cultivation Co., Ld.	—	Tls. 350,000	7,000	Tls. 50	Tls. 50	Tls. 109,000	... Tls. 1,635	30-9-04	Tls. 2½ for year ending 30-9-1904	17-12-04	3¾	Tls. 68 sales
Mining.												
Chinese Engineering & Mining Co., Ld.	1901	£1,000,000	1,000,000	£1	£1	*d* £40,000 *h* £12,289	..... £7,820	29-2-04	Interim of 1/- (No. 4)	1-7-05	—	Tls .9 buyers
Oriental Consolidated Mining Co., Ld.	1901	G.$5,000,000	*y* 500,000	G. $10	G. $10	none	G. $672,093	31-12-04	Interim of 50 cts. (gold) for '95 (No. 5)	11-7-05	—	G. $17
Raub Australian Gold Mining Co., Ld.	1892	£200,000	150,000 50,000	£1 £1	18/10 £1	£4,873	...*Dr.* £8,745	31-3-05	No. 12 of 1/-=48 cents	28-1-01	—	$4

STOCKS	WHEN ESTAB-LISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND	WHEN PAID	Approximate Return at Present Quotation*	CLOSING QUOTATIONS
											PER CENT	
Docks, Wharves and Godowns.												
Farnham (S. C.), Boyd & Co., Ld	1901	T5,520,000	55,200	T100	T100	T1,000,000	.....T34,924	30-4-05	Final of T8 making T13 for 1904/05	24-6-05	9½%	T144 sales
Fenwick (Geo.), & Company, Ld.....	1889 1905	$450,000	6,000 *z* 12,000	$25	$25	$70,000	..... $8,577	31-12-04	$3¾ for 1904.. on 6,000 shares... First year.....	13-3-05 —	7½% —	$27 $25
Hongkong and Kowloon Wharf and Godown Co., Ld.....	1886	$2,000,000	40,000	$50	$50	$250 000 *d.r.* $58,423 *i* $10,000 *p* $300,000	.....$29,422	31-12-04	Interim of $2½ for 1905.....	26-7-05	4¾%	$104
Hongkong & Whampoa Dock Co., Ld.	1901	$2,500,000	50 ,000	$50	$50	*i* $41,500	.....$501,332	30 6-05	$6 for first half year '05	22-8-05	7	$185 buyers
New Amoy Dock Co., Ld.....	1892	$40,500	6,000	$6¾	$6¾	$55,500	.....$489	31-12-03	$1¼ for '03.....	5-5-04	7	$17 sellers
Shanghai and Hongkew Wharf Co. Lt.	1902	T3,200,000	32,000	T100	T100	*b* T487,210 *r* T59,880	.....T10,711	31-12-04	Interim of T6 for 1905.....	23-8-05	6½%	T187½ buyers
Yangtsze Wharf and Godown Co., Ld..	1902	T250,000	2,500	T100	T100	T17,500	.....T2,762	31-12-05	T18 for '04.....	29-3-05	9¼%	T192½ buyers
Lands, Hotels and Buildings.												
Astor House Hotel Co., Ld.....	1901	$750,000	(4) 30,000	$25	$25	$14,156	.....$9,028	30-6-05	$2½ for year ending 30-6-05	19-8-05	9 %	$28 buyers
Astor House Hotel, Ld. (Tientsin)	—	T. T100,000	2,000	T. T50	T. T50	T34,000 *e* T8,000	..... T806	29-2-05	Final of T5 making T9 for the year.	20-4-05	6¾%	T135
Central Stores, Ld.....	—	$91,845	6,000	$15	$12				Final of 60 cents making $1.80 for 04..	30-3-05	12 %	$15
Do. (Founders').....			123	$15	$12	$20,000	.....$1,502	31-12-04	None.....	—	—	$100
Do. (New Issue).....	1904	$360,000	24,000	$15	$7½				Preferential of 7% for '04.....	30-3-05	7½%	$7
Hongkong Hotel Co., Ld.	1866	$600,000	12,000	$50	$50	$648,975 *r* $31,087	.....$10,126	30-6-05	$5 for first half-year 1905.....	4-9-05	6¾%	$147 buyers
Hongkong Land Investment and Agency Co., Ld.	1889	$5,000,000	50,000	$100	$100	*e* $250,000	.....$37,875	31-12-04	Interim $3½ for 1905.....	27-7-05	5½%	$128 sellers
Hotel des Colonies Co., Ld. (Shanghai)	1902	T225,000	9,000	T25	T25	*n* T20,986	..... T7,202	31-3-05	T2½ for the year ending 31-3-05.....	18-5-05	14 %	T18 sales
Hotel Metropole Company, Limited	1904	$200,000	2,000	$100	$100	—	.....First	year	Interim of $4.....	26-1-05	...	$105 sellers
Humphreys' Estate & Finance Co., Ld.	1887	$1,500,000	150,000	$10	$10	*i* $200,994 *e* $50,000	.....$11,958	31-12-04	90 cents for '04.....	11-2-05	7¼%	$12½ buyers
Kowloon Land and Building Co., Ld. ..	1889	$300,000	6,000	$50	$30	none	..... $377	31-12-04	$3 for '04.....	31-1-05	7½%	$40 buyers
Shanghai Land Investment Co., Ld.....	1901	T2,600,000	52,000	T50	T50	T828,813 *e* T170,000	.....T40,066	31-12-04	Interim of T3 for '05.....	21-7-05	6¾%	T122 sellers
Tientsin Hotel des Colonies, Ld.	1903	T70,000	1,400	T50	T50	none	..... T670	31-12-04	Interim of T3 for '05..... ...	4-7-05	12 %	T45
Tientsin Land Investment Co., Ld.....	1902	T772,600	7,726	T100	T100	*i* T67,300	..... T725	31-12-04	Interim of T3 for '05.....	2-8-05	6 %	T117½ buyers
Wei-hai-wei Land and Building Co., Ld.	1899	T91,850	3,764	T25	T25	none	T687	31-12-04	None	—	—	T12
West Point Building Co., Ld.	1889	$625,000	12,500	$50	$50	none	.....$1,247	31-12-04	Interim of $1¾ for '05.....	27-7-05	6¾%	$55
Cotton Mills.												
Ewo Cotton Spinning and Weaving Co., Ld.	1895	T750,000	15,000	T50	T50	none	.....T12,844	31-10-04	T4 for year ended 31-10-03.....	22-12-03	8 %	T52½ sales
Hongkong Cotton Spinning, Weaving and Dyeing Co., Ld.....	1901	$1,250,000	125,000	$10	$10	*e* $30,000	.....$23,264	31-7-05	$1 for year ended 31-7-05.....	4-9-05	7 %	$14½ sellers
International Cotton Manufacturing Co., Ld.	1895	T750,000	(5) 10,000	T75	T75	T50,000 *n* T31,669	.....T13,629	30-9-04	Interim of 3 % a/c 1898.....	30-4-98	—	T44 buyers
Laou-kung-mow Cotton Spinning & Weaving Co., Ld.	1895	T800,000	(6) 8,000	T100	T100	none	.....T10,000	31-12-04	Interim of 4 % a/c 1898 on 6,000 shares	1-8-98	—	T59 buyers
Soey Chee Cotton Spinning Co., Ld.....	1895	T1,000,000	2,000	T500	T500	*l* T5,658	.....T22,051	31-12-04	4 % for 1897.....	2-2-98	—	T260 buyers
Miscellaneous.												
Anglo German Brewing Co., Ltd.	1905	$100,000	4,000	$100	$100	—	—	—	First year.	—	—	$105
Bell's Asbestos Eastern Agency, Ld.....	1895	£5,377.10*s*	8,604	12/6	12/6	£314	.....£770	31-12-04	1/3 per share for '04.....	21-7-05	9¼%	$7 buyers
Campbell, Moore & Co., Ld.....	1886	$12,000	1,200	$10	$10	$8,000	..... $1,182	31-12-04	$3 for 1904	1-4-05	8¼%	$36
China-Borneo Co., Ld.....	1903	$720,000	(7) 60,000	$12	$12	none	—	31-12-04	$1 for 1904	17-3-05	8½%	$11¾
China Flour Mill Co., Ld.	—	T200,000	4,000	T50	T50	T30,000	.....T718	31-12-04	Interim of T5 for 1905	24-7-05	8½%	T77½ sellers
China Light and Power Co., Ld.	1901	$500,000	50,000	$10	$10	none	.....$3,739	29-2-04	None	—	—	$10
China Provident Loan and Mortgage Co., Ld.	1898	*a* $1,000,000	100,000	$10	$10	$80,000	.....$1,581	31-12-04	80 cents for 1904.....	18-1-05	9 %	$9 buyers
Dairy Farm Company, Ld.....	1896	$187,500	25,000	$7½	$6	—	—	31-7-04	$1¼ for year ending 31-7-03	20-11-03	—	$17¼

STOCKS	WHEN ESTAB-LISHED	CAPITAL	NO. OF SHARES	VALUE	PAID UP	RESERVE	AT WORKING ACCOUNT	DATE	LAST DIVIDEND	WHEN PAID	Approximate Return at Present Quotation*	CLOSING QUOTATIONS
											PER CENT	
Miscellaneous.—Continued												
Green Island Cement Co., Ld.	1889	$1,500,000	150,000	$10	$10	p $400,000 / $500,000	.....$95,054	31-12-04	$2 for 1904	27-2-05	7 %	$28
Hall & Holtz, Ld.	—	$420,000	(8) 21,000	$20	$20	$186,000	.....$7,551	29-2-05	Final of $1½ making $2½	15-4-05	9¼ %	$27
Hongkong and China Gas Co., Ld.	1864	£70,000	7,000	£10	£10	f £25,394 / £3,000	..... £8,188	31-12-04	Final of 6% & bonus of 1% making 22s. for 1904	25-5-05	7 %	$175 buyers
Hongkong Electric Co., Ld.	1889 / 1899	$600,000	30,000 / 30,000	$10 / $10	$10 / $5	none	.....$2,151	30-4-05	$1.00 / 50 cents for year ending 30-4-05	17-7-05	6¾ % / 5¼ %	$15¼ buyers / $9¼ buyers
Hongkong High-Level Tramways Co., Ld.	1887	$125,000	1,250	$100	$100	$50,000	.....$2,796	30-11-04	$15 for year ending 30-11-04	24-12-04	7 %	$215 buyers
Hongkong Ice Company, Ld.	1881	$125,000	5,000	$25	$25	k $60,000	.....$5,356	31-12-04	Interim of $4 for 1905	2-8-05	7 %	$237½ sellers
H'kong Rope Manufacturing Co., Ld.	1883	$500,000	10,000	$50	$50	$60,000	.....$11,137	31-12-04	$10 for 1904	10-4-05	7 %	$152 buyers
Hongkong Steam Waterboat Co., Ld.	1900	$150,000	15,000	$10	$10	$2,500	..... $299	30-9-04	Interim of 50 cents for half year ended 31-3-1905	3-6-05	13¾ %	$14 sellers
Lane, Crawford & Co., Ld. (Shanghai).	1903	$250,000	2,500	$100	$100	none	.....$42,009	29-2-05	Final of $9 making $14 for 1904	19-4-05	9½ %	$145 buyers
Maatschappij tot Mijn-, Bosch- en Landbouwexploitatie in Langkat	1902	G.2,500,000	25,000	G.100	G.100	T528,210 / T19,465	.....T35,849	31-10-04	3rd quarterly dividend of T2½ making so far T15 for '05	15-9 05	—	T240 buyers
Mondon, (E. L.) Ld.	1902	T350,000	7,000	T50	T50	none	*Dr.* T117,638	31-12-04	T5 for 1902	2-5-03	—	T25
Philippine Company, Ld.	1904	$675,000	67,500	$10	$10	——	—	—	First year	—	—	$8 nominal
Shanghai and Hongkong Dyeing and Cleaning Co., Ld.	1903	$60,000	1,200	$50	$50	none	*Dr.* $5,537	31-8-04	None	—	—	$50
Shanghai Gas Co., Ld.	1903	T800,000	16,000	T50	T50	d T145,000 / T108,172	.....T8,011	31-12-04	Interim of T3½ for 1905	26-7-05	7 %	T123½ sales
Shanghai Horse Bazaar Co., Ld.	1904	T270,000	5,400	T50	T50	T45,000	..... T9,751	31-12-04	T6 for 1904	17-3-05	7½ %	T80 sellers
Shanghai Pulp and Paper Co., Ld.	—	T450,000	4,500	T100	T100	T25,000	..... T6,968	31-12-04	Interim of T6 for 1905	22-7-05	9 %	T150 sellers
Shanghai Sumatra Tobacco Co., Ld.	1902	T600,000	(9) 30,000	T20	T20	w T24,820 / T25,000	....T1,297	31-10-04	Final of T6 making T9	8-3-05	13½ %	T68
Shanghai Waterworks Co., Ld.	1881	£144,000	7,200	£20	£20	T170,000	..... T17,220	31-12-04	Interim of 15/- for 1905,	27-7-05	4½ %	T440 buyers
South China Morning Post, Ld.	1903	$150,000	6,000	$25	$25	none	*Dr.* $5,068	29-2-05	None	—	—	$20
Steam Laundry Co., Ld.	1902	$75,000	15,000	$5	$5	none	.....$3,644	31-5-04	60 cents for year ended 31-5-04	2-8-04	7½ %	$8
Straits Ice Company, Ld.	1884	$200,000	2,000	$100	$100	$25,000	..... $700	31-12-04	$5 account 1905	...-2-05	—	$150
Tientsin Waterworks Co., Ld.	1901	T. T200,000	2,000	T. T100	T. T100	e T15,259 / T4,000	.....T1,012	30-4-05	Final of T4½ making T8½ for '04/5.	17-6-05	7 %	T. T120
United Asbestos Oriental Agency, Ld.	1896	$100,000	9,900	$10	$4						9 %	$9 buyers
Do. do. do. (Founders')			100	$10	$10	$22,000	..... $551	31-5-05	80 cents / $19.80 for year ended 31-5-05..	29-7-05	11 %	$180
Watson (A. S.) & Co., Ld.	1886	$900,000	90,000	$10	$10	$300,000 / $25,000	..... $6,096	31-12-04	Final of 50 cents making $1 for '04.	29-5-05	7 %	$14½ sales
William Powell, Ld.	1901	$150,000	15,000	$10	$10	e $4.500	.....$676	30-6-05	Final of 70 cents making $1.20 for year	2-10-05	10½ %	$11½ ex div.

LOANS AND DEBENTURES	AGENTS FOR THE LOAN	AMOUNT OF LOAN	PAR VALUE	OUT-STAND'G BONDS	WHEN PAYABLE	CLOSING QUOTATIONS
China Government, 7 per cent. Silver Loan 1886 E.	Hongkong & Shanghai Bkg. Cor.	T767,200	T250	1969	Mar. 31st & Sept. 30th each year until Mar. 31st, 1917.	par.
Hongkong Hotel Co., Ltd., 6% Mortgage Debentures of 1899‡		$500,000	$500	ẓ all	Half yearly, June 30th and December 31st	par.
Shanghai & Hongkew Wharf Company, Ltd. 6% Debentures of 1902		T543,900	T100	.....	Half yearly, June 30th and December 31st	T97
Astor House Hotel Co., Ltd. 8% Debentures of 1903		T500,000	T100	.....	Half yearly, January 1st and July 1st	T105
Chinese Engineering & Mining Co., Ltd., 6% Debentures of 1903†		£500,000	¶	£480,000	Half yearly, June 30th and December 31st	par.
International Cotton Manufacturing Co., Ltd. 6% Debentures of 1901	Russo Chin. B.	T500,000	T100	.....	Half yearly, March 31st and September 30th	par.

Plus accrued interest

a Authorized capital $2,000,000
b Building Reserve Account.
c Capital Reserve Fund.
d Depreciation Fund.
e Equalization of Dividend Fund.
f Exchange and Investment Fluctuation Account.
g Gold Reserve Fund
h Exchange Reserve Account.
i Insurance Fund.
j Reinsurance Fund.
Contingencies Account
l Legal Reserve Fund.
m
n Sinking Fund.
o
p Premium on New Issue.
q
r Repairs and Renewals Account.
s Silver Reserve Fund.
t
u Underwriting Suspense Account.
v
w Special works Fund.
x Extra Reserve Fund.
y 75,000 owned by the Company.
z 6,000 shares unissued.
1 5,725 shares unissued.
2 First issue of 60,000 of which 10,411 unallotted.
3 785 shares unissued.
4 7,600 shares unissued.
5 1,616 shares unallotted.
6 842 shares unallotted.
7 14,000 shares unissued
8 399 shares unissued.
9 Only 13,000 shares issued.
* Based on last year's dividend.
ẓ 268 held by the Company.
¶ In certificates of £20 and £100
‡ Redeemable in 10 years, or at option of Company the Company giving 6 months' notice.
† Redeemable at par at rate of £10,000 per annum from 31st December, 1903 to 31st December, 1952
Dr. Deficit.

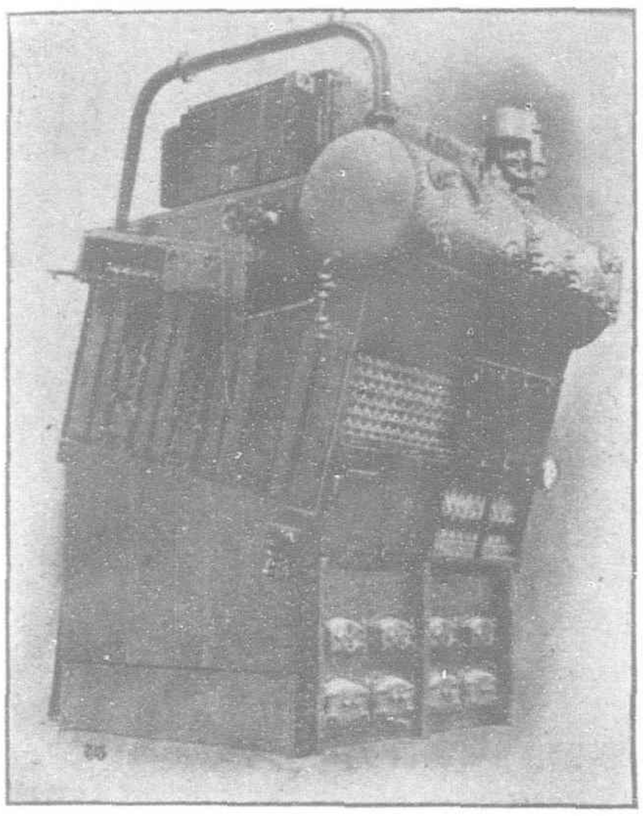
SINGAPORE SHARE QUOTATIONS.

COURTESY MESSRS. FRASER & CO., BROKERS, SINGAPORE, OCTOBER, 1905.

NAME	DATE OF FORMATION	CAPITAL	CAPITAL PAID UP	NO. OF SHARES	ISSUE VALUE	PAID UP	RESERVE	LAST DIVIDEND	SINCE LAST MAIL HIGHEST	SINCE LAST MAIL LOWEST	CLOSING QUOTATIONS
									$	$	$
Mining.											
Bersawah Gold Mining Co., Ld.	1900	$175,000	115,000	13,500 *1*	10	10	.....	.....	.....	.....	12.00 sellers
" " " " *Deferred*..				4,000	10	10	.....	.....	.....	.....	8.00 sellers
Bruseh Hydraulic Tin Mining Co., Ld.	1901	$600,000	600,000	60,000	10	10	.....	.....	.....	.....	6.50 buyers
Kadana Gold Mining Co., Ld.	1901	$300,000	300,000	20,000	10	10	.....	.....	.....	.....	2.00 sellers
" " " " *Pref*..				10,000	10	10	.....	.....	.....	.....	10.00 nominal
Kechau Goldfields, Ld. *Fully paid*	1902	£30,000	16,175.7/-	6,207	1	1	.....	.....	.....	.....	6.00 sellers
" " " *Contrib*.				23,793 *2*	1	19/-	.....	.....	5.50	4.50	4.50 sellers
Pahang Corporation Ld.	1889	£250,000	244,306	244,306	1	1	20,000	3 per cent for year ending 30-6-02	.....	.....	3.50 sellers
Pahang Kabang Ld.	1890	£375,000	375,000	360,000	1	1	.....	.....	0.70	0.60	0.60 sellers
" " " *Pref*.				15,000	1	1	.....	.....	.....	.....	..... nom.
Queensland Raub G. M. Co., Ld. *Fully paid*	1901	£146,700	100,866	36,700	1	1	.....	.....	.....	.....	..... nom.
" " " " *Contrib*. ..				110,000	1	11/8	.....	.....	.....	.....	0.30 sellers
Raub Aust. Gold Ming. Co., Ld. *Fully paid*	1892	£200,000	191,250	50,000	1	1	4,873	1s. paid January, '01	.....	.....	5.00 nom.
" " " " *Contrib*....				150,000	1	18/10	.....	1s. " " "	.....	.....	4.75 buyers
Redjang Lebong Mining Co.	1898	*f*.2,000,000	1,800,000	20,000 *3*	100	100	.....	22 9-10% for year ending 31-12-04 ..	345.00	340.00	345.00 buyers
Royal Johore Tin Mining Co., Ld.	1900	$220,000	220,000	22,000	10	10	.....	5 " for year ending 15-2-04...	.....	.....	3.25 sellers
Sipiau Tin Co., Ld.	1899	$230,000	230,000	23,000	10	10	.....	5 " for ½ year ending 30-6-03	.....	.....	5.25 buyers
The Belat Tin Mining Co., Ld.	1903	$300,000	300,000	30,000	10	10	.....	.....	.....	.....	6.00 sellers
Tronoh Mines, Ld.	1902	£160,000	149,185	160,000 *5*	1	1	.....	5/6 paid during 1905.....	20.75	20.25	20.25 sales
Duff Development Co., Ld.	1903	£400,000	350,000	400,000 *6*	1	1	.....	.....	.....	.....	8.50 sellers
Rubber.											
Bukit Rajah Rubber Co.	1903	£70,000	61,000	70,000 *13*	1	.....	.....	.....	.....	.....	£3.0s. od. .....
Balgownie Rubber Estate Ltd.	1905	$200,000	100,000	20,000	10	5	.....	.....	.....	.....	$6.50 sellers
Cicely Rubber Estates Co	1904	£12,000	10,500	6,000	1	.....	.....	.....	.....	.....	£1.13s. 6d.
" " " 5% Pref.				6,000 *14*	1	.....	.....	.....	.....	.....	£1.15s. od. .....
Pataling Rubber Estate Syndicate	1903	£30,000	17,500	30,000 *15*	1	1	.....	.....	.....	.....	£2.15s. od. .....
Ribu Planting Co. Ld.	1904	$200,000	135,000	2,000 *16*	100	100	.....	.....	.....	.....	$160.00 sellers
Sandycroft Rubber Co.	1904	$100,000	85,000	1,000 *17*	100	100	.....	.....	.....	.....	$125.00 buyer.
Selangor Rubber Co. Ltd.	1898	£30,000	26,000	30,000 *18*	1	1	.....	.....	.....	.....	£6.10s. od. .....
Singapore & Johore Rubber Co. Ld.	1903	$100,000	78,750	150	100	100	.....	.....	.....	.....	$100.00 .....
" " " " " " *Contrib*.				850	100	75	.....	.....	.....	.....	75.00 .....
Sungei Way Rubber Co. *Fully paid*	1904	£50,000	13,920	6,920	1	1	.....	.....	.....	.....	£2 os. od. sellers
" " " " *Contrib*.				35,000 *19*	1	4/-	.....	.....	.....	.....	17.00 sellers
Vallambrosa Rubber Co.	1904	£60,000	50,000	60,000	1	.....	.....	.....	.....	.....	£2.17s 6d .....
General.											
Fraser & Neave, Ld.	1898	$225,000	225,000	4,500	50	50	112,500	10 p. ct. and 2½ per cent bonus for '04	.....	.....	102.00 buyers
Hogan & Co., Ld.	1904	$480,200	334,800	3,348	100	100	5,000	7 per cent March 1905.....	77.50	70.00	70.00 sellers
H'kong and Shanghai Banking Corporation	1865	£10,000,000	10,000,000	80,000	125	125	10,000,000 *9* 8,500,000 250,000 *10*	35s. for ½ year ending 30-6-05.....	.....	.....	900.00 .....
Howarth Erskine, Ld.	1901	$1,200,000	1,200,000	12,000	100	100	275,000	10% and 5% bon. for yr. end. 30-6-05..	.....	.....	230.00 .....
Maynard & Co., Ld.	1901	$34,000	34,000	3,400	10	10	.....	20 per cent for year ending 31-10-04..	.....	.....	23.00 sellers
Riley, Hargreaves & Co., Ld.	1899	$875,000	875,000	6,000	100	100	150,000	10 p. ct. and 2½ p. ct. bon. for year '04	200.00	195.00	200.00 sales
" " " 7% Pref.				2,750	100	100	.....	7 p. ct. for year 1904.....	.....	.....	115.00 buyers
Singapore Cold Storage Co., Ltd..	1903	$600,000	240,000	24,000 *4*	10	10	.....	.....	.....	.....	9.00 sellers
Singapore Dispensary Ld.	1891	$30,000	30,000	600	50	50	19,000	12½ per cent for year ending 31-7-04	.....	.....	77.50 buyers
Straits Ice Co., Ld.	1884	$200,000	200,000	2,000	100	100	22,000	5 " interim for 1905.....	.....	.....	150.00 buyers
Straits Steam Ship Co., Ld.	1890	$500,000	421,500	5,000 *7*	100	100	400,000 169,228 *11*	5 p. ct. interim for 1905.....	.....	.....	142.50 buyers
Straits Trading Co., Ld.	1887	$3,000,000	2,500,000	300,000 *8*	10	10	700,000 1,021,395 *12*	10 p.ct. & 50cts. bon. ½yr.end.31-3-05	43.00	41.50	41.50 sales
Tanjong Pagar Dock Co., Ld.	1864	$3,700,000	3,700,000	37,000	100	100	1,950,000	$20 for half year ending 31-12-04.....	500.00	425.00	500.00 sales
Debentures.		$									
Howarth Erskine Ld. 7 per cent ...		250,000	.....	.....	.....	.....	.....	.....	.....	.....	3 per cent prem.
Singapore Municipal 6 " ...		400,000	.....	.....	.....	.....	.....	.....	.....	.....	... " nominal
" " 5 " ...		1,878,000	.....	.....	.....	.....	.....	.....	.....	.....	2 " prem. buyers
" " 4 " ...		602,300	.....	.....	.....	.....	.....	.....	.....	.....	2 " dis. nominal
Riley, Hargreaves & Co., Ld. 6 p. cent		225,000	.....	.....	.....	.....	.....	.....	.....	.....	3 " prem. buyers
Tanjong Pagar Dock Co., Ld. 6 "		250,000	.....	.....	.....	.....	.....	.....	.....	.....	2 " prem. nom.
" " " " 5 "		1,365,500	.....	.....	.....	.....	.....	.....	.....	.....	prem. sales

1 3,500 unissued.
2 13,300 "
3 2,000 "
4 36,000 unissued.
5 10,815 "
6 50,000
7 785 unissued.
8 50,000 "
9 Special Gold Reserve Fund.
10 Insurance Fund.
11 Sundry Reserves.
12 Sundry Reserves.
13 9,000 unissued.
14 1,500 "
15 12,500 " Mortgage £5,000
16 650 unissued.
17 150 "
18 4,000 "
19 8,080 "

N. B.—During the absence of Mr. David W. Bell in England, the representation of Messrs. BABCOCK & WILCOX will be carried on by POOLE, LAUDER & CO., No. 2 Yang-King-Pang, Shanghai; also at Tientsin and Hankow.



MARINE TYPE FOR LAND PLANTS

Superheaters.
Feed-Water Heaters.
Economisers.
Steam Piping.
Steel Chimneys.
Water Purifiers and Softeners.
Coal-Conveying Machinery.
General Boiler-House Accessories.

Patent Chain Grate Mechanical Stokers

SMOKELESS COMBUSTION and **HIGH EFFICIENCY** with Bituminous Coal. Continuous Working, Low Cost of Upkeep, Self-Clinkering and Easy Manipulation.

Extract from 1904 Report of F. H. W. Aldridge, Municipal Electrical Engineer of Shanghai:

"It will be learnt with pleasure that the operation of the **MECHANICAL STOKERS** in the new Boiler (B. & W.) has so far successfully overcome the smoke nuisance. With this boiler working the emission of black smoke from the chimney shaft is entirely absent, only a thin white vapour at times being visible."

4,500,000 HP. IN USE

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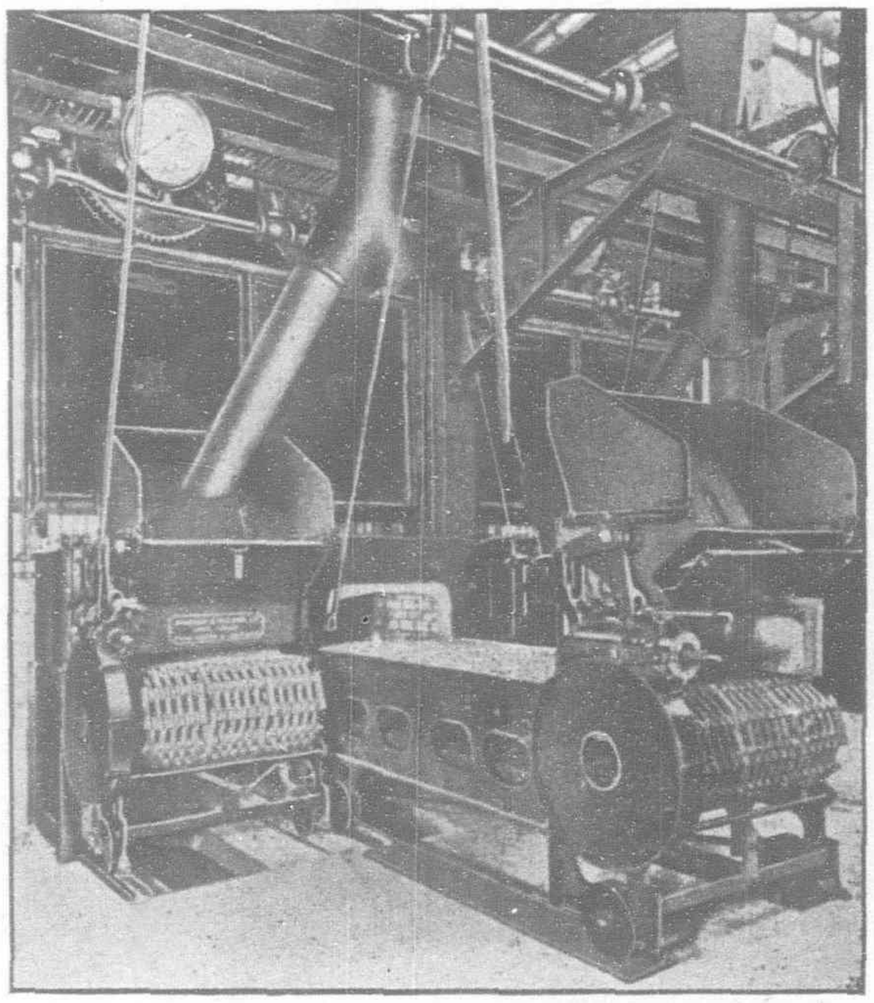
Works: RENFREW, SCOTLAND.

Patent Water-Tube Boilers



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REPRESENTATIVE
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Telegraphic Address:
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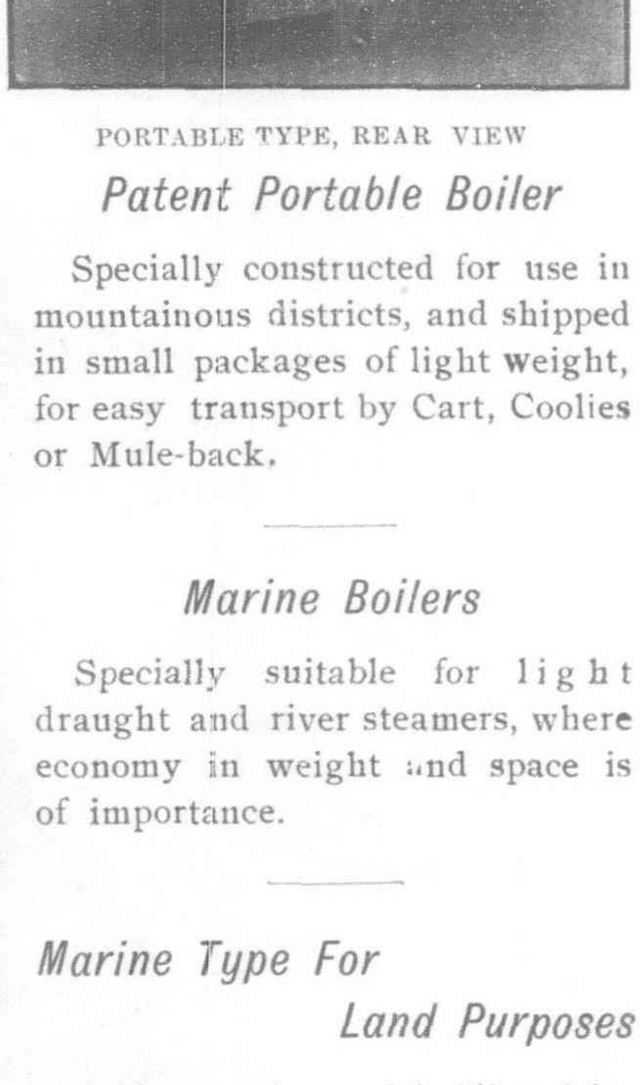
Walker Sons & Co., Ltd.
BANGKOK
MacKay & MacArthur



PORTABLE TYPE, REAR VIEW

Patent Portable Boiler

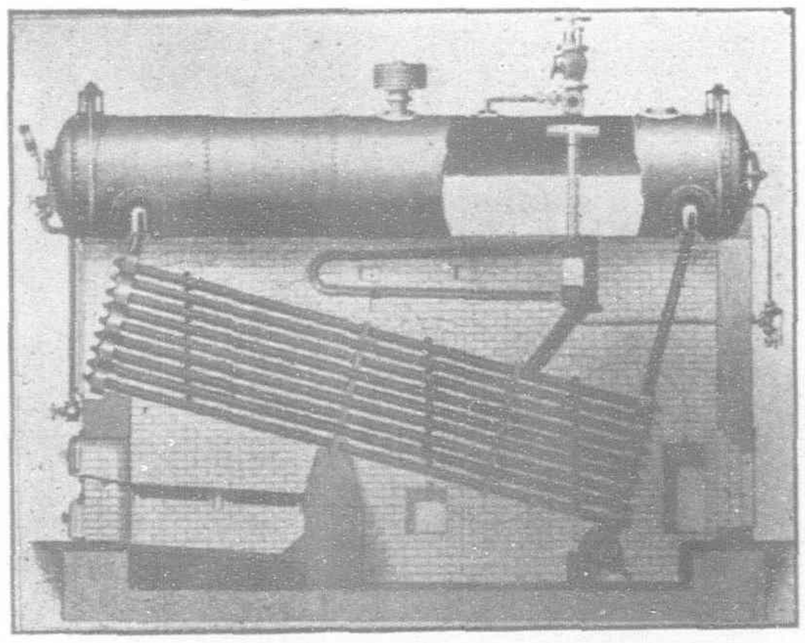
Specially constructed for use in mountainous districts, and shipped in small packages of light weight, for easy transport by Cart, Coolies or Mule-back.

Marine Boilers

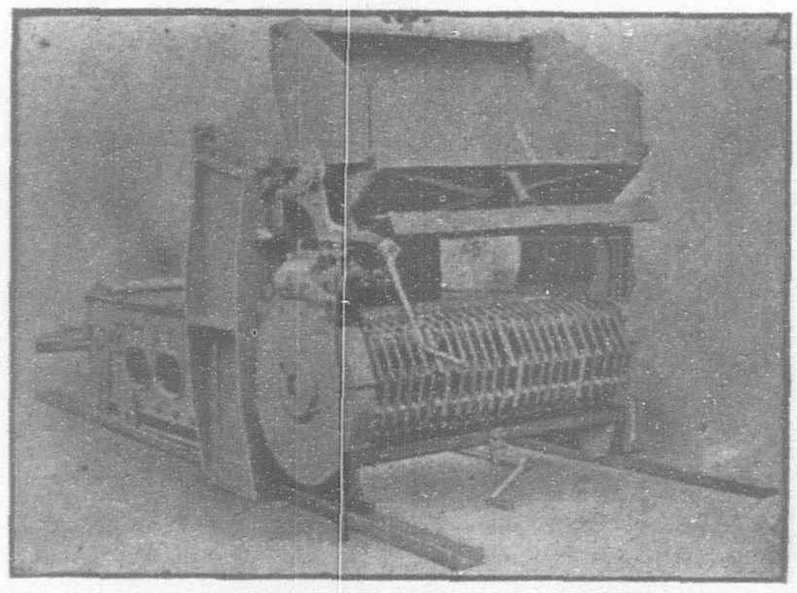
Specially suitable for light draught and river steamers, where economy in weight and space is of importance.

Marine Type For Land Purposes

Is frequently used in Electricity Works, and occupies less space for the horse power generated than their Standard Land Type Boiler.



STANDARD LAND TYPE BOILER OF WHICH SOME 35,000 HAVE BEEN MADE



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J. Marke Wood's Line of Steamers
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The American China Development Co.
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World Marine Insurance Co.
Reliance Marine Insurance Co.
Union Marine Insurance Co., Ltd.

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North British & Mercantile Insurance Co.
Law Union & Crown Insurance Co.
Yorkshire Fire and Life Insurance Co.
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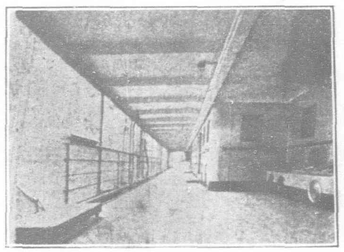

UPPER PROMENADE DECK.

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THE NEWEST, FASTEST, AND MOST LUXURIOUS STEAMERS PLYING BETWEEN HONGKONG AND MANILA. BUILT IN 1901, ALL LATEST IMPROVEMENTS—ACCOMMODATION AMIDSHIPS—ELECTRIC LIGHTS, FANS, ETC. : : : : : : : : : :

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"ZAFIRO" "RUBI"

WEEKLY SAILINGS. ONLY TWO NIGHTS AT SEA

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ROPE FACTORY.

PURE MANILA ROPE

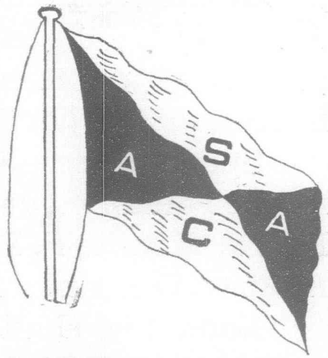
MADE FROM ONLY THE BEST WHITE MANILA HEMP.

USED BY THE BRITISH NAVY ON THE CHINA STATION, AND BY THE MAIL AND LEADING LINES OF STEAMERS

SHEWAN, TOMES & CO.

GENERAL MANAGERS

AMERICAN ASIATIC STEAMSHIP CO.



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SHEWAN, TOMES & COMPANY
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ADVERTISEMENT

OFFICE OF THE MUNICIPAL BOARD

Manila, August 1, 1905.

Sealed BIDS or PROPOSALS will be received until 12 m. January 12, 1906, for the construction of a system of sewers and appurtenances for the city of Manila, Philippine Islands.

The total length of sewers will be approximately 52 miles, of which 7.5 miles will be of brick and concrete sewer ranging in size from 4.75 feet in diameter to 2 by 3 feet egg-shaped and laid at depths from 12 to 20 feet below the surface; and 43 miles will be of pipe sewers, from 8-inches to 24-inches in diameter, laid at depths of from 5 to 18 feet.

In addition to this there will be one 42-inch cast-iron outfall pipe 6,500 feet in length laid below the bed of the harbor on a pile foundation; besides one double line of 24-inch flexible-joint cast-iron, 650 feet in length, crossing the Pasig River.

The above work will be let as one contract, and each proposal must be accompanied by a certified check for $50,000, drawn on a local bank, or a bond drawn for a like amount signed by a fidelity insurance company authorized to give such bonds in the Islands, and no bid shall be considered unless such check or bond accompany it.

A surety-company bond for an amount equal to 20 per cent of the gross amount of the contract will be required of the successful bidder.

Specifications, general plans, and blank forms of proposals may be obtained at the office of the Board after August 1, 1905. Plans and specifications may be seen at the office of the Bureau of Insular Affairs, War Department, Washington, D. C.

The right is reserved to reject any or all bids.

G. S. LANE,
Acting Secretary, Municipal Board.

J. F. CASE,
Chief Engineer, Department of Sewer and Waterworks Construction.

YOKOHAMA SHARE QUOTATIONS

COURTESY A. C. HUTTON POTTS, SHARE AND GENERAL BROKER, YOKOHAMA, SEPTEMBER, 1905.

STOCKS.	CAPITAL.	NO. OF SHARES.	ISSUE VALUE.	AMOUNT PAID UP.	RESERVE FUND.	AT WORKING ACCOUNT OR CARRIED FORWARD.	DATE.	LAST DIVIDEND.	FOR TERM.	CLOSING QUOTATION.
	Y.		Y.	Y.						
Brett & Co., Limited	28,000	2800	10	10			30/6/03	6%	for 1 year	7 Nominal.
Club Hotel, Limited	185,000	1850	100	100			31/3/04	7%	,, 1 year	45 Nominal.
Grand Hotel, Limited	250,000	2500	100	100		Y.2,608.34	30/6/05	6%	,, ½ year	210 Sellers.
Helm Bros., Limited	186,000	3720	50	50		Y.8,349.06	31/12/04	17½%	,, 1 year	75 Buyers.
Langfeldt & Co., Limited	150,000	1500	100	100		Dr.30,174.81	30/6/05		,, ½ year	30 Buyers.
C. Nickel & Co., Limited	125,000	5000	25	25		10,572.91	31/10/04	16%	,, 1 year	32½ Sales.
Japan Brewery Company, Limited	450,000	9000	50	50	170,000	4,781.87	31/12/04		,, 1 year	100 Sales.
Yokohama Engine and Iron Works	130,000	2600	50	50	20,000	Y.5,935.35	31/5/05	20%	,, 1 year	80 Sales.
Hirano Mineral Water Co., Ltd.	125,000	5000	25	25				1st year		25 Sellers.
Oriental Hotel, Ltd., Old Ordinary		1490	50	50			31/8/04	12%	,, 1 year	75 Nominal.
,, ,, New ,,		1510	50	25						
,, ,, Old Preference	251,000	750	50	50	47,819.90			8%		63 Sales.
,, ,, New ,,		1250	50	25						
,, ,, Founders		80	12½	12½				Y.37		500 Sales.

DEBENTURE LOANS.	AMOUNT OF LOAN.	FACE VALUE OF DEBENTURES.	RATE OF INTEREST.	INTEREST PAYABLE.	CLOSING QUOTATION.
Japan Brewery Company, Limited	200,000.00	100.00	7%	1 April and 1 October.	108 Sales.
Brett and Company, Limited	11,500.00	100.00	7%	1 June and 1 Dec.	95 Sellers.
Yokohama United Club	250,000.00	100.00	7%	30 June and 31 Dec.	108 Sales.
C. Nickel and Company, Limited	50,000.00	100.00	8%	1 May and 1 Nov.	110 Sellers.

FAR EASTERN ENGINEERING AND CONSTRUCTION NEWS

(Concluded from p. 134.)

Experts believe that while the war has helped the railways, the development of trade in Manchuria will continue to such an extend that this profit will remain undeminished.

JAPANESE AND EASTERN CORPORATION.—It is amounced that the Japanese and Eastern Corporation, the first of many new trading concerns which will probably turn their attention to Japan, is being prepared for flotation. The capital will be £500,000, and will probably be guaranteed, at least in part, by the Norwich Union Insurance Company, and underwriting commi sion will be paid by profit-sharing debentures. The company has been formed with the object of establishing a financial and trust business in Japan and the Far East generally; of conducting commercial and trading relations with Japan and its dependencies, of obtaining concessions in Korea, Japan, Manchuria, Formosa, etc., and of assisting in the industrial and general explotation and development of these countries.

MISCELLANEOUS NOTES.

COLD STORAGE, IPOH, PERAK, F. M. S.—Cold storage enterprise has reached Ipoh. The company has already opened its plant.

JAVA'S SUGAR CROP.—The Java sugar crop is estimated at 8 per cent less this year than in 1904. The shortage may come to 80,000 piculs.

MACHINERY FOR YOKOHAMA.—The American steamer *Ohio II* has arrived from Hamburg with a cargo of machinery for Yokohama.

SOAP AND GLASS, CHINA.—Commercial reports are to the effect that the demand for soap and glass in increasing throughout the Chinese Empire.

FLOUR MILL, HONGKONG.—It is reported that capitalists are about to erect a flour mill in Hongkong, to cost £200,000, having a capacity of 8,000 bags per day.

ACETYLENE GAS LIGHTING, CHINA.—Acetylene gas machines are said to be making a good fight for a hold upon the lighting business of China, and they will probably get a good share of it.

MACHINERY FOR SZECHUAN ARSENAL, CHINA.—Viceroy Hsi Liang has bought machinery for manufacturing rifles, ammunition, smokeless powder, as well as for electric light, etc., for the Szechuan Arsenal, which has arrived there.

WEAVING AND SPINNING FACTORIES, CHINA.—Weaving and spinning factories are to be established at Tsunhua, Tengjein, Yutien and Chichou, all E. of Peking and about a day's journey from Tongshan. The capital behind the enterprise is about Tls 20,000.

FOREIGN IRON WORKS, JAPAN.—The eighteenth annual general meeting of the Yokohama Engine and Iron Works, Ltd., has just been held. The net profits for the year were -Y-38,320 80, against -Y-10,867 for the previous year. A dividend of -Y-10 per share has been declared.

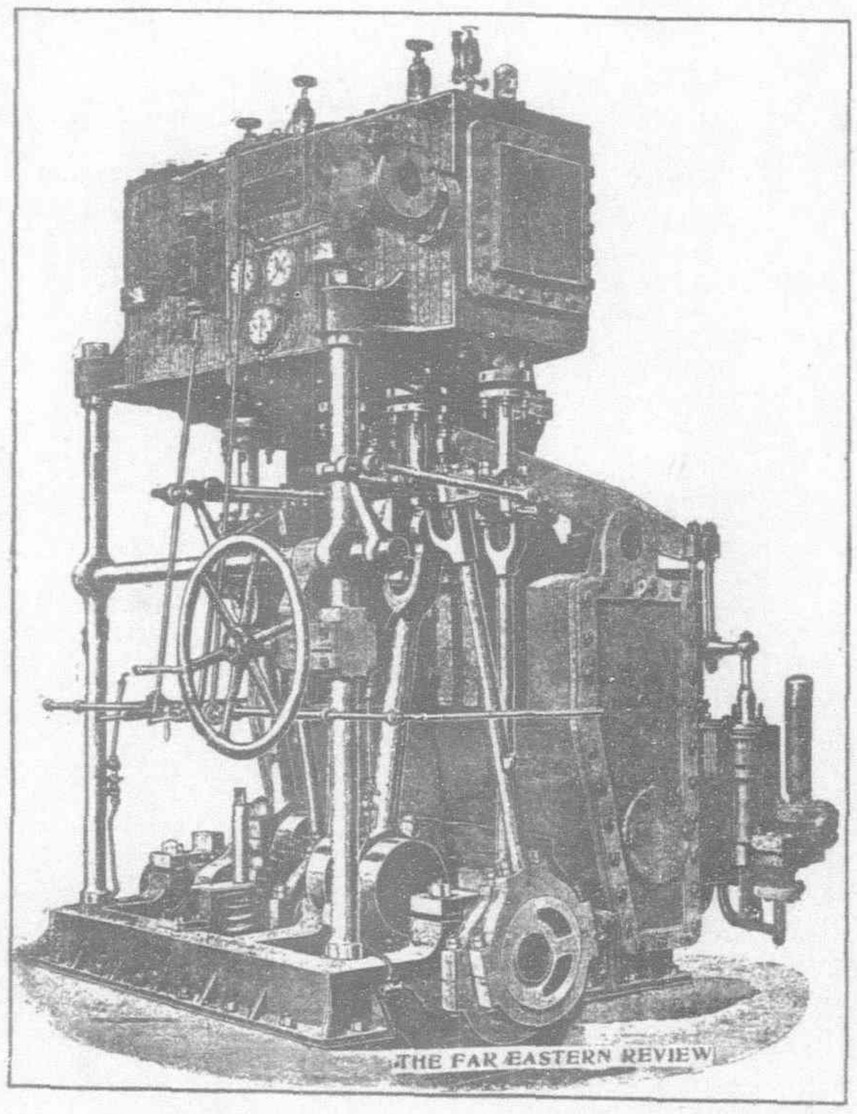
DEMAND FOR PAPER, CHINA.—A recent American consular report notes that the demand for paper in China is increasing at far greater rate than any local supply is likely to increase. The prospect is that before long the paper situation in China will become acute.

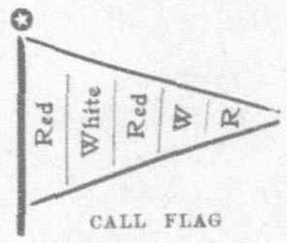
OUTPUT OF TEAK, JAVA.—The output of Java teak during 1904, was much more satisfactory than that of previous years, being 6,356,000 cub. ft., as against 3,531,600 cub. ft. in 1903. The demand for timber has been good for export to Europe and to India, while South Africa has taken about 547,000 cub. ft. in the form of railway sleepers.

FUEL BRIQUITTING PLANT, JAPAN.—A plant for briquetting fuel has been located at Tokuyama, Japan under control of the Japanese admiralty, which also controls the Omine mine which furnished the coal, for the plant. The normal capacity of the plant is 150,000 tons *per annum*, although this can be doubled if occasion demands. The cost of the briquetting coal at the plant is about $4.50 per ton. The plant cost $500,000, the machinery being purchased in England.

HEMP-STRIPPING MACHINES, PHILIPPINES.—The first attempt at putting hemp-stripping machines to practical commercial use is being made by Messrs Castle Bros.—Wolf & Sons of Manila. This firm has undertaken a contract for the stripping of hemp in the Province of Albay, and for this purpose has sent to the rich hemp districts in that province two double machines which are operated by a small gasoline engine of 2 h. p., and eight hand machines. The latter are very light and can be carried about by one man, while two men can move the double machines from place to place. The double machines are fed from both ends and were built in the United States. The hand machines are single feeder and were built in Manila. The result of this experiment is being watched with much interest by the hemp dealers of Manila.

Manuel Earnshaw & Co.





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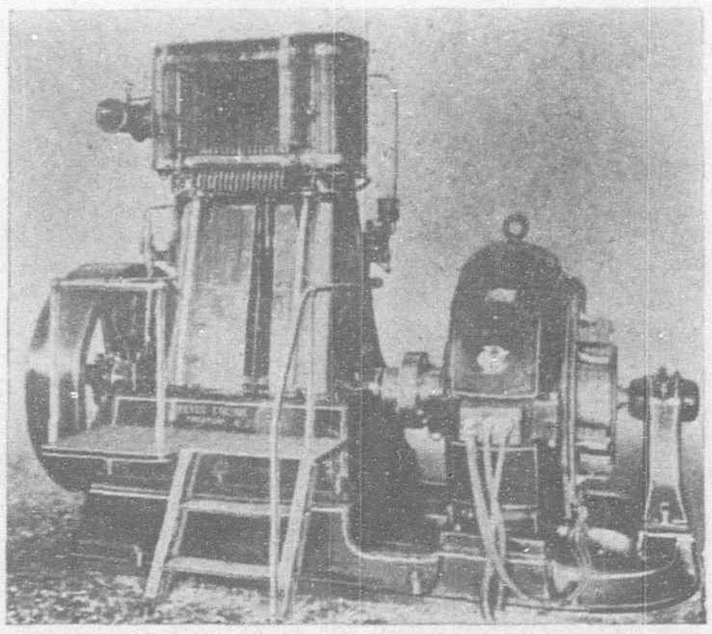
HOUSE WIRING



STEAM PLANTS FOR ALL INDUSTRIES

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